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Becoming an Agile Warrior - An Examination of using a Constructivist Approach to Learning During Basic Training in the British Army.

Leon Berry

Bachelor of Arts (Honours)
Master of Education

**Thesis submitted to The Open University
for the degree of Doctor of Education**

**The Open University
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Abstract

The British Army has been on the receiving end of Government cuts to numbers of full-time (regular) service personnel following the 2010 Strategic Defence and Security Review and proposed 2018 National Security Review. With numbers being reduced from 102,000 to 82,000, there could be a potential further reduction to 70,000 regular personnel, equivalent to two-thirds of the French Army. The challenge the British Army faces is maximising the performance of the organisation and the individuals who serve in it. As a result, the Agile Warrior concept was developed to promote thinking skills throughout all ranks. This was facilitated by the introduction of a constructivist approach, underpinning the way learning is conducted from a behaviourist, instructor-led style to a student-centred approach to learning. This method was to be trialled at Phase 1 training establishments.

This EdD thesis sought to both unpack the current understanding of the complexities of Phase 1 training including its design and implementation, and evaluate a potential solution in linking the design, instructors, recruits and organisational aims of the British Army. In order to achieve this, the thesis was divided into two studies focussing on the training design and instructional methodologies respectively.

Study 1 of this thesis initially sought to examine the training design for Phase 1 training delivered at the Army Training Centre (ATC) based in Pirbright. Interviews were conducted with staff members involved in the training design of Phase 1 and recruits in order to gauge the different sides. What emerged from the results was a friction between the standardisation of training design and the instructors want for flexibility to teach in ways they saw appropriate. This finding indicated a gap that could potentially be filled by employing the Present, Apply, Review (PAR) method as the constructivist vehicle for instructors.

Study 2 sought to analyse the impact of PAR in bridging the gap between the standardised requirements of Phase 1 whilst providing flexibility for instructors to teach. A mixed method, quasi-experimental design was used for data collection in order to analyse the thoughts of 239 recruits during their Phase 1 training. The findings of a pre-post survey found no difference in regard to the impact of PAR compared with non-PAR instruction using motivation, self-regulated learning and reflection as measurable constructs. Follow-up semi-structured interviews were conducted with ten recruits in order to further unpack the findings.

Overall, this research unpacked recruit experiences of Phase 1 training. The findings suggested that factors such as the impact of the instructor, time as a restrictive factor, and the motivational climate facilitated by Phase 1 training had a potentially overriding impact over the specific instructional method delivered by the instructors. It is suggested that the constructivist approach be employed in unit training within the wider army and that further studies should examine its impact within that context.

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Chapter 1 – Introduction

At present the British Army is going through significant structural changes, affecting all facets of its operations. As a consequence of the recession, in 2010 a strategic defence and security review (SDSR) was published (HM Government, 2010) which outlined plans to restructure the British Army in terms of its Divisions, Brigades and Regiments; essentially reducing manpower from 102,000 'regular soldiers' (i.e. full-time soldiers) to 82,000 but increasing the number of 'reservists' (i.e. part time soldiers) to 30,000 (HM Government, 2010). This situation is forcing the Army to reflect on how it develops its soldiers and instructors through existing training programmes.

This reduction in full-time personnel numbers has resulted in a complete infrastructure overhaul, which is currently being implemented, and will continue until the new "Army 2020" is scheduled to be ready (House of Commons, 2014). The multiple redundancy tranches have left numerous jobs 'gapped', meaning that soldiers are completing not only their job, but the work of others who have been made redundant. This has increased work-pressure onto currently serving personnel, with concerns growing on the amount of personnel facing redundancy (Brooke-Holland & Thurley, 2014) as units with a long and distinguished heritage are amalgamated with others, forcing a high degree of change.

With total personnel numbers that are now at their lowest numbers since 1850 (HM Government, 2010), the British Army must consider how it will develop existing personnel so that they can effectively fulfil the various roles that are being left vacant through redundancies and other staff reduction strategies. The most important role that the army must fulfil is having the ability to be 'operationally effective' i.e. the ability to adequately fulfil the 3 components of fighting power; conceptual, moral and physical components, in order to be combat-ready (Land Operations, 2010). This refers to the most traditional role of the Army, and arguably its most important function, in terms of war-fighting. Training, therefore, will always prioritise operational effectiveness as the main reason for conducting the training (DCDC, 2011b).

It has been highlighted that training can no longer be focused on producing personnel that simply respond to orders, but who can make decisions in a variety of demanding environments (HM Government, 2010). Essentially this means that a soldier could be deployed to a variety of countries conducting different tasks such as helping with the Ebola crisis in Sierra Leone, or peace-keeping in Cyprus. Therefore, regular and reservist soldiers need to be prepared for any combination of operations both physically and mentally. This is highlighted in papers such as the "3 Block War" (Krulak, 1999) which illustrates "that in one moment in time, service members will be feeding and clothing displaced refugees, providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart by conducting peacekeeping operations. And, finally, they will be fighting a highly lethal battle all on the same day and all within three city blocks" (P.1).

In this respect, the UK government is beginning to address this issue through the publication of White Papers such as the 'Future Character of Conflict' (FCOC) (DCDC, 2011b) and 'Global Strategic Trends – Out to 2045' (DCDC, 2014) in an attempt to forecast what future operations, the British Army would be involved in and what they would look like over the coming few decades. For example, with the constant increase of the world population, resources such as food and water will become more contested, leading to possible conflicts, particularly around the equator line (DCDC, 2014). This gives an indication of one of the types of conflict and geographical area that British forces may be required to be deployed in a peace-keeping role. Investment in developing the skills of military personnel will be a key factor in future conflicts, in particular due to the relatively low numbers of serving personnel within the Army.

Furthermore, there cannot be a reliance on always having the technological advantage over enemies of the British forces (DCDC, 2011b).

In addition, the Army has recognised the need for appropriate personnel training in order to enable soldiers to develop skills that are required for effective job performance through the introduction of concepts such as the Agile Warrior (Liddy, 2010). The Agile Warrior refers to soldiers having the ability to make decisions for themselves, as opposed to waiting for orders from senior officers. This is based on the principle of mission command i.e. devolving the decision-making powers to the front-line troops so that they can seize the initiative without having to wait for further orders. For example, a platoon of 30 soldiers on patrol detaining a key enemy target who they come across; if they had to wait for confirmation from senior officers then the chance of detaining the enemy could be missed. This concept was successfully used by the Germans during the Second World War as the front-line troops were able to keep up momentum as they did not have to wait for senior officers to receive the situational information, make decisions, and then give further orders to those front-line troops (Muth, 2011).

However, this gives a great amount of responsibility to soldiers as their decisions could affect an entire operation and whilst the positive aspects have been highlighted in this chapter, the negative consequences have equally been highlighted by the UK media. Recent incidents of British Army instructors working at training establishments attacking recruits (Mail Online, 2017) and forcing junior soldiers to eat animal manure (BBC News, 2017) have brought the Army's training policy under scrutiny.

The Agile Warrior (Liddy, 2010) concept essentially states that soldiers at all ranks need to be better educated, keeping the strategic 'big picture' in the back of their minds, which should lead to more effective decisions being made from the regular soldiers who are closest to the situation, for example in a fire-fight with enemy forces. It also encourages all soldiers to make decisions, rather than simply follow orders without question. With such increasing demands of soldiers in an increasingly complex conflict environment, these complexities need to be taken into account during all levels of training. Therefore, an effective foundation must be laid within Phase 1 training.

As such, the initial chapter of this thesis provides an overview of the overarching issues that were addressed for this thesis. Within that, Section 1.1 provides the background knowledge of those issues and how they impact the wider sphere of training within the British Army. Following that, Section 1.2 describes the aims of the research, with Section 1.3 providing an outline of the content of the following chapters.

1.1 Background

The current drivers for change across UK Defence, following the 2010 SDSR, are centred upon the need to restructure to meet the operational requirement of a return to contingency as detailed in the FCOC paper (DCDC, 2011b). The future battle space will be non-linear, complex and uncertain; the impact of the individual will be magnified by modern inter-connectivity. The FCOC paper identifies that, in the conflicts to come, people will provide the 'edge', meaning a focussed investment is required in this area.

The requirement for training and education across the forces is to provide trained personnel and teams with the right knowledge, skills and attitude to succeed on current operations, to meet standing commitments and to prepare for contingency operations. To that end, the strategic intent is captured in the statement 'Defence is a learning organisation, which is ready, agile, resilient and effective' (Training, Education, Skills, Recruiting and Resettlement (TESRR), 2012). Key to this is the development of a training system that places the learner at the heart of the learning process.

Military personnel essentially exist in one of two states: either they are delivering military capability, or they are training to deliver that capability. The boundary between these two states is increasingly indistinct in the complex, cluttered, inter-connected and uncertain battle space described in the FCOC report (DCDC, 2011b). The agile force, in which people are the 'edge', is the force that learns and adapts more quickly than its adversary. Modern military training and through-life development and learning are part of military capability which is a continuously evolving process.

The current approach to instructor training is a blend of different approaches within a behaviourist environment. This, underpinned by constructivist instructional design i.e. the preparation of resources and learning processes in order to facilitate students' learning through creation of meaning in their minds (Fardanesh, 1999), has been appropriate for effective training of large numbers (instructional design will be further explored and defined in Chapter 2 of this thesis). However, in order to improve training delivery, the army needs to move further away from this approach and engage with a new paradigm which does not dismiss its behaviourist foundations, which still has its place, but which focuses on adult learning and furthers the use of constructivist-based learning. This type of learning encourages students to develop the metacognitive skills (i.e. knowledge about strategies for learning) necessary for achieving complex conceptual learning.

Defence instructor training tends to compartmentalise learning activity into three discrete boxes; the skills lesson, the theory lesson and the practical exercise. These are supported by solid design principles and useful lesson structure mnemonics such as Explain, Demonstrate, Imitate, Practice (EDIP), Introduction, Development, Consolidation (IDC), and Brief, Monitor, Debrief (BMD). Despite most of the time being dedicated to the learner-centric 'practice' section, the training takes a trainer-centric approach and focuses on what the trainer should do to deliver training. Rather than being central to the learning process, instructors need to become a 'guide on the side' rather than a 'sage on the stage' (King, 1993). This requires the emphasis for instructor training to move towards the development of confident, thinking, and 'agile' instructors who are able to put aside their authority in order to facilitate sound student-centric learning. The following section outlines the current pipeline of training in the British Army.

1.1.1 British Army Phase Training

Currently, personnel development in the British Army involves three phases of training namely:

- Phase 1 – Initial basic training
- Phase 2 – Trade training e.g. engineer specific training
- Phase 3 or Workplace Training – Ongoing training under Regiment / Corps requirement

Whilst Phase 2 and 3 training will be specific to the variety of 'cap badges' (the different Regiments and Corps), all Phase 1 training is conducted under the overarching, guiding principles of the Common Military Syllabus (CMS).

The Common Military Syllabus

Phase 1 training involves transforming civilians into professional soldiers during a 14-week training programme. It is renowned for being busy and challenging due to the nature of the training as new recruits try to keep up with the demands both physically and mentally. It teaches recruits the basic generic skills that all personnel in the Army are required to be competent at. Phase 1 training for soldiers is conducted at Army Training Centre (ATC) Pirbright and Army Training Regiment (ATR)

Winchester. However, for the purposes of this thesis the focus of Study 1 and 2 (Chapters 4, 5 and Appendix 2) was based on data collected from ATC Pirbright, mostly for practical reasons; a more detailed explanation is given within those chapters.

These establishments follow the standardised scheme of work set out by the CMS. This instructional design contains the various training objectives (TOs) and instructional specifications (ISPECs) that the training is based on. Examples of some of the areas taught include field craft, weapons handling, navigation and fitness training. There are numerous stakeholders that add value at different stages including deciding on the content for the course, designing the course itself, ordering the lessons and delivering the lessons to the recruits. Those responsibilities are as shown in Table 1.1, with Table 1.2 depicting the type of lessons that are taught within the CMS.

Table 1.1 Training Design Overview

Design element	Responsibility
Defence Training Group (DTRG)	Create Formal Training Statement
Initial Training Group (ITG)	Create the content i.e. ISPECS and ASPECS
ATR (Winchester) & ATC (Pirbright)	Schedule the program
Instructors at ATRs	Deliver the training to recruits



Table 1.2 Phase 1 Programme Overview

Training Week	Content
Week 1	Attestation (a formal ceremony to join the British Army), kit issue, administration, weapons training and Exercise Icebreaker - your first night out on exercise.
Week 2	Weapons training, drill and first aid.
Week 3	Fitness training, first aid and platoon activities day.
Week 4	Introduction to live firing.
Week 5	Exercise First Night over 2 nights followed by Exercise Realities of War - a trip to military museums in London & Portsmouth.
Week 6	Map reading, first aid, fitness training.
Week 7	Phase 2 Visits, drill test, families' day.
Week 8	Exercise Halfway (three nights out of camp) and compulsory drugs testing.
Week 9	Bayonet Fighting and long range firing.
Week 10	Adventurous training in Wales (caving, climbing, canoeing and hill walking).
Week 11	Annual Combat Marksmanship Test (ACMT).
Week 12	Field craft, arms drill and physical fitness tests.
Week 13	Exercise Final Fling (a one-week exercise, assessing all of the skills learned) plus fire, movement and map reading tests.
Week 14	Arms drill and sports culminating in a prestigious passing out parade in front of family, friends and unit representatives.

(British Army - Training and Education. Available: http://www.army.mod.uk/training_education/24413.aspx. Last accessed 18th Sept 2014.)

School of Infantry - Catterick

The Infantry Training Centre (ITC) based in Catterick is the location for Phase 1 and Phase 2 infantry training. The exception to this is that junior soldiers who are destined for the Infantry receive Phase 1 training at the Army Foundation College, Harrogate. Recruits go through a different programme to the CMS called the Combat Infantryman's Course (CIC) which lasts for 24 weeks and is the framework for all regular infantry Phase 1 training. The course provides recruits with special-to-arms infantry skills that are required for an operationally deployable rifle platoon, sometimes with minimal further appropriate pre-operational training. Upon successful completion of the CIC, recruits join infantry-based Regiments such as the Parachute Regiment, Foot Guards and the Ghurkhas.

Although the School of Infantry is a Phase 1 training establishment, the recruits go through a different training programme as they are focussing on a specific role. I have chosen to focus the study on ATC Pirbright as their training has to be standardised although the recruits will be moving on to a wider variety of trades. There are also more recruits that attend the ATC, meaning a wider pool of potential research data.

ATR Harrogate

There is a second ATR, based in Harrogate, however it will not be used for the purposes of this study. This is because ATR Harrogate accommodates junior soldiers (15-17 years old) who are not old enough to enter ATC Pirbright or ATR Winchester. Although they follow the same CMS, it is delivered over a year rather than 14 weeks, which means there would be great disparities in terms of any recommendations being made from this study due to the ages of the recruits and major differences in training structure.

1.1.2 Potential Solution: Student-Centred Instruction

In an increasingly complex global environment, British Army soldiers are being asked to deal with not only the demands of the changing character of conflict, but also to handle the upheaval of transforming themselves into a very different army structural. The training that soldiers receive must be reflective of the reality and challenges that they may face during their careers; therefore, the way soldiers are trained is of vital importance. With all the information that we are expecting soldiers to “assimilate”, considering the way that they learn is essential, otherwise there is a danger of easily overloading them with information. This means that the way the training is presented, i.e. the instructional design, must be appropriate and fit for purpose in order to successfully transform civilians into soldiers within the 14-week Phase 1 training programme.

Newly recruited personnel are expected to process and understand a large volume of information and employ it at any given time after it has been taught; at times only having covered a topic once. Not only are the recruits expected to retain information, but it is often under less desirable learning conditions, such as after rigorous physical activity or with lack of sleep. Whilst this could be considered appropriate military training due to the physically demanding nature of deployments such as a 6-month tour on Op HERRICK (Afghanistan), any person learning skills for the first time should do so under optimal learning conditions first, before it can be tested under more demanding conditions (Gibbs & Simpson, 2004) such as simulation training exercises.

As such, the instructional methodology taught during instructor-training courses is moving away from its traditional behaviourist roots and into a new paradigm of student-centric training based on a constructivist approach. More specifically, the “artificial” distinction between theory lessons, skills lessons and practical exercises is addressed by the application of a single lesson and PAR learning structure of “Present, Apply, Review” (Petty, 2009). This training approach focuses an integrated approach that builds on appropriate cognitive and constructivist adult learning theory.

The benefits of using this recently adopted methodology can include improvements in areas such as problem solving, social and communication skills and transferring skills to the real world (Thirteen.org, 2017). However, of more direct relevance to military training and fulfilment of the Agile Warrior concept is the potential development of recruits’ motivation, self-regulated learning and powers of reflection. These aspects reflect the fundamentals of newly-trained soldiers who can display high levels of internal motivation (wanting to get the job done), take ownership and initiative of their education (knowing how to get the job done) and have the self-awareness to reflect on and improve their performance with little external assistance (effectively evaluating the job they’ve done).

These aspects are described in more detail in Chapter 2 of this thesis. In principal, and certainly in theory, the PAR model could potentially bridge the current gap between the instructional designers of Phase 1 training, the Army as an organisation attempting to develop ‘agile warriors’, and the recruits who have high training demands placed upon them. As such, the examination of PAR is the focus of Study 2 (Chapters 5 & 6) of this thesis using motivation, self-regulated learning and reflection as key assessments constructs.

1.2 Research Aims and Contributions

The research conducted as part of this thesis wanted to unpack the complexities of Phase 1 training including its design and implementation, and evaluate a potential solution in linking the design, instructors, recruits and organisational aims of the British Army. Whilst there is literature that analyses all the areas highlighted separately (He, 2013; Fer, 2016; Stockdale, 2013; Kirchner and Akdere, 2017), there is a need for more empirical evidence to ascertain the effectiveness of these factors combined within the Phase 1 setting. In regard to contributions, the findings of this research have demonstrated that there is a requirement for constructivist-based instruction in the wider army rather than at Phase 1 training establishments.

In order to meet the targets set by this thesis, the following research questions were set and addressed:

RQ 1: How effective is the instructional design at Phase 1 training establishments? (Pilot Study)

RQ2: What was the impact of PAR on recruits in regard to motivation levels? (Chapter 4)

RQ3: What was the impact of PAR on recruits in regard to self-regulated learning?

(Chapter 4)

RQ4: What was the impact of PAR on recruits in regard to their reflective practice?

(Chapter 4)

RQ5: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' motivation levels? (Chapter 5)

RQ6: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' self-regulated learning? (Chapter 5)

RQ7: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' ability to reflect? (Chapter 5)

The research questions were largely based on the findings of the Pilot Study conducted during Year 1 of the EdD programme. The study involved examining the effectiveness of the instructional design at Phase 1 training establishments. In order to measure this, a semi-structured interview was conducted with a key member of staff within the training design cell at Army Training Centre (ATC) Pirbright. This was then compared with the findings of a focus group interview involving three recruits from Sword Company (the rehabilitation Company at ATC Pirbright). A grounded theory approach was employed in order to capture any frictions or emerging issues between the two sides of Phase 1 training i.e. those that design it and those that receive the training.

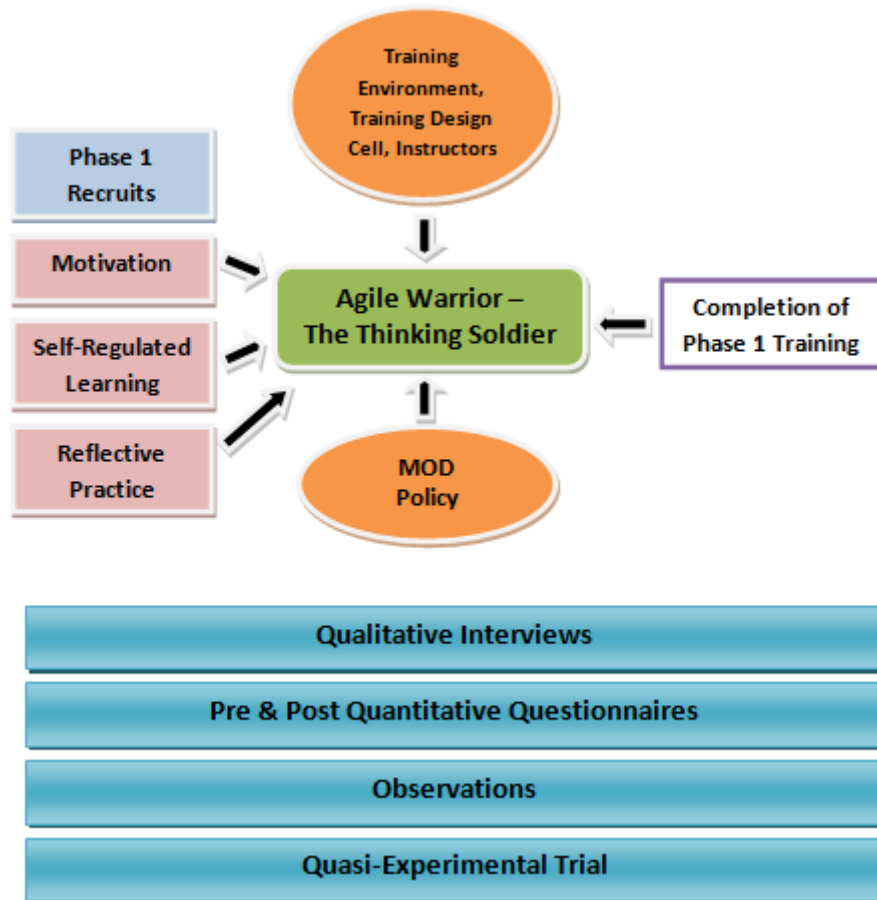
The findings from the Pilot Study indicated three overarching themes: stakeholder influence, learning, and standardisation. Stakeholder influence referred to both internal and external parties that had influence over the training design and deliver for example the training design cell who created the training programme (internal) and the effects of the restructuring of under A2020 (external). The learning theme suggested that there was a desire to improve recruits' motivation for learning as well as their reflective capabilities with the recent employment of the Present, Apply, Review (PAR) model within Phase 1 instructor training.

However, the theme that resonated the most amount of friction was within the standardisation theme. The friction originated between the opposing views from the training design cell and the recruits regarding the delivery of lessons. The training design cell required a standardised approach from instructors when delivering lessons, basing their content on the Learning Specification (LSpec - a type of lesson plan) for each lesson. The LSpecs are a product of the Defence Systems Approach to Training (DSAT) model which all training in the British Armed Forces is based on and required standardisation as the training is delivered across two Phase 1 establishments: ATC Pirbright and ATR Winchester. However, the recruits stated that the most enjoyable and memorable lessons they received were when the instructors “brought the content to life” by referring to their own experiences, which the training design cell opposed. The introduction of the PAR model (described in Chapter 2.4) would ideally be able to bridge this gap as it uses a constructivist approach to teaching. As such RQs 2-7 were developed based on the overarching themes from the Pilot Study.

As a researcher, conducting the Pilot Study was also very beneficial for developing my research skills. What it made me realise was that, whilst the findings suggested a direction of travel for the thesis, it was based on limited data. I knew that a much more academically robust approach would be required when conducting the Main Study as, although the methodological approach used in the pilot was appropriate, it lacked the depth and breadth in order to derive any significant results.

Recruit training is a complex issue that holds numerous variables that overlap with one another. The most relevant underlying issues are highlighted within Chapter 2 (Literature Review); however, they can include the instructional design, the impact of the instructor and the level of training they have received. Furthermore, the recruits themselves bring with them a host of variables such as gender, age, prior experience and educational background. Figure 1.1 highlights the research approach in this thesis and outlines the use of a variety of integrated methods in answering the research questions including, pre and post questionnaire surveys, qualitative interviews and quasi-experimental trials. Chapters 2 and 3 will describe the specific elements of the research in more detail.

Figure 1.1 Key variables and methods used in this thesis



The remaining chapters of this thesis outline evidence related to underlying factors as related to Phase 1 training and will provide contributions to current understandings via the results of the research. The following section outlines the structure of the thesis from this point.

1.3 Thesis Structure

This introductory chapter outlined the focus of this thesis and the context it operates in. The overarching structure of each chapter is as follows:

Chapter 2

Chapter 2 contains a review of current research based on relevant issues of the training provided at Phase 1 training establishments including instructional methodologies used. In doing so, the complex and multivariate nature of the training and its impact on recruits is outlined. The chapter also critically reviews the gaps in current knowledge and understanding. Those gaps aided in developing the rationale for the research questions.

Chapter 3

Chapter 3 states the overarching methodologies used for this research and explains the reasoning for the inclusion of the mixed methods approach. An overview of the specific methods used for the conducted studies are described in their relevant chapters (Chapter 4 and 5).

Pilot Study (Appendix 2)

The Pilot Study (Study 1) focussed on answering RQ1 through an examination of the training delivered at ATC Pirbright. An overview is given regarding the specific methods used to address the research questions. This includes an outline of the settings, participants and procedures. It also includes a description of the study's findings, highlighting differences in the training design cell and the delivery of the content by the instructors. The research findings and limitations of the study are discussed as well as highlighting implications for following chapters in this thesis.

Chapter 4

Chapter 4 describes Study 2 Part 1 through a questionnaire regarding recruits' reflections of their experiences during their Phase 1 training programme (RQ2-4). This chapter provides an overview of the specific research methods used to answer the research questions, along with an outline of the study participants and settings of the study. The analysis of Study 2 Part 1 is also outlined, which demonstrated subtle but inconsistent differences in recruits' development. The implications and limitations of the findings are also discussed.

Chapter 5

Chapter 5 describes Study 2 Part 2, which incorporated a quasi-experimental study to examine the differences in recruits' tangible behaviours based on the motivation, self-regulated learning and reflective levels (RQ5-7). The chapter goes on to outline the methods incorporated to address these research questions, including the participants and settings. Study 2 Part 2 triangulated the findings from Study 2 Part 1 through a number of qualitative interviews. The chapter also demonstrates the results of the qualitative analysis, provided further explanation to Study 2's findings. Again, the implications and limitations of the findings are also discussed.

Chapter 6

The final chapter in this thesis examines the results of the studies and provides conclusions and discusses the contributions this thesis has provided. As such, implications for future research are presented.

1.4 Conclusions

This chapter outlined the context of the research in this thesis and the described the content of the chapters to follow. The research conducted aimed to provide a holistic understanding of the instructional methodologies used in Phase 1 training and a critical evaluation of recruit experiences of that training. The findings focussed on addressing gaps in previous work on constructivist-based instructional methodologies used within a military context.

Chapter 2 – Literature Review

2.1 Introduction

The focus of this thesis has been to examine the training provided at Phase 1 training establishments in the British Army in order to evaluate its effectiveness in developing the cognitive motivation and awareness of recruits. This included a focus on the instructional design provided by the Training Design Cell based in ATC Pirbright, the methodologies employed by the instructors tasked with carrying out the training and the recruits' reactions to that training. As such, this chapter provides an overview of relevant literature in regard to instructional design and teaching methodologies. The chapter sought to address the emergent gaps in current literature that helped to shape the research questions of this thesis. The sections that follow provide an overview of pertinent issues addressed by this thesis.

In Section 2.2, the background of the issue is reiterated from Chapter 1 before describing current gaps in the instructional design within the British Army. Those issues are then linked in Section 2.3 with an overview of instructor training including a comparison with the US Army. Section 2.4 then outlines the literature relating to the learning theories that underpin the topics in this thesis, with Section 2.5 then providing a rationale of the potential intervention with the PAR model; the latest instructional methodology employed by the Army. The full list of research questions addressed within this thesis are finally highlighted in Section 2.6.

2.2 Background

The British Army is increasingly emphasising decision making at all levels of operations, including personnel that work at the “lowest” levels, such as Phase 1 recruits. Phase 1 soldiers were previously only required to remember procedures, and follow orders from senior officers, but must now make decisions as part of their operations including when working in the field (Conway, 2008). As such, the application of acquired knowledge about procedures and operations is a crucial component of military training. Soldiers who cannot translate information into performance pose a risk to both themselves and their fellow soldiers at crucial times during operations, i.e. on combat operations such as fighting insurgents in Afghanistan (Vogel-Walcutt, et al., 2010). Individuals at all levels of service are required to fully comprehend and be able to apply learned information, to understand the complexity of the battlefield, and to envision ways in which their choices will impact the larger battle space, since decisions made at the tactical level can affect the entire strategic outcome of a mission. Collectively, these situational demands necessitate that military personnel receive substantial training in higher-order cognitive skills (Vogel-Walcutt, et al., 2010).

Unfortunately, additional training time is not available for expanded instruction to target these skills, as the Phase 1 training facilities in Pirbright and Winchester have a set 14-week period in which to fulfil the training requirements. Due to the fundamental importance of higher-order cognitive skills in military operations and the need to maximize learning efficiency during training, the effectiveness of current Phase 1 training must be reviewed to consider innovative ways to enhance current training strategies and methodologies (Vogel-Walcutt, et al., 2010), which is one of the reasons underpinning the research conducted in this study.

It is crucial then that the instructional design of Phase 1 training establishments; its design, content and delivery, are sufficient enough to transform a civilian into a soldier. However, this must be achieved without overloading recruits with too much information, whilst maintaining a balance of tradition and changing training requirements and demands from a modern soldier. All of which must be condensed

into a relatively short training programme that must facilitate the requirements of both the training objectives and the individual recruits as the learners.

Having numerous stakeholders involved at various levels means that a variety of issues emerge as a result of this. Building on my initial review submitted for Progress Review (PR) 6, I further explored the literature to better place and frame the affordances and limitations of Phase 1 training. The criteria used for accepting the literature included 'grey' literature, i.e. army publications, so that there would be a relevance to military training. What the literature has shown is that a number of themes emerge regarding instructional design. These themes include:

- the definition of instructional design itself and what it involves,
- the many models that can be used,
- types of learning activities used and
- types of learners.

These themes will be explored in section 2.2.1.

Pilot Study

2.2.1 Instructional Design

According to Gustafson (1996), instructional design involves four elements that contribute to the process i.e. 1) analysing what is to be taught/learned; 2) determining how it is to be taught/learned; 3) conducting and revising the programme; and 4) assessing whether learners do learn. This is reflective of the process conducted by the Phase 1 programme designers. Arguably the final aspect is the most difficult to measure i.e. assessing whether learners actually process the content of the programme. There are summative tests that each recruit must successfully pass during their Phase 1 training. However, the effectiveness of the process will be researched by interviewing recruits who are participating in Phase 1 training, which is outlined in the methodology section (Chapter 3) of this thesis.

From a historical perspective, instructional design has links within a military context. During World War II the US military faced the need to rapidly train large numbers of people to perform complex tasks such as field-stripping a carbine and navigating across the ocean (Instructional Design Central, 2014). The design focussed on operant conditioning research conducted by Skinner (1974), leading to training programs focusing on observable behaviours for assessment purposes. Each task, or training objective, was broken down into subtasks, and each subtask treated as a separate learning goal. This is reflected within the British military of the current use of training objectives being supported by enabling objectives and key learning points i.e. the specific elements of information that the recruits must learn. Training was designed to reward correct performance, and remediate incorrect performance, and mastery was assumed to be possible for every learner, given enough repetition and feedback. These elements are ones that could be investigated further within Phase 1 training programmes.

Following on from these initial designs, ideas were being published that developed the basic concepts of instructional design. One common theory that emerged was Bloom's Taxonomy (1956). His influential taxonomy helped to describe what he termed as the three domains of learning i.e. cognitive (what one knows or thinks), psychomotor (what one does, physically) and affective (what one feels, or what attitudes one has). These taxonomies are evident in the current Phase 1 training programmes, e.g. a large proportion of time focuses on physical training and development. However, it could be argued

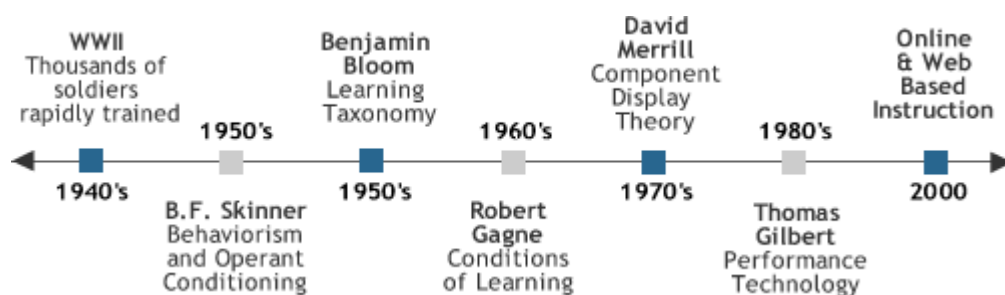
that the cognitive element is regarded as being of a high priority to develop by the British Army, particularly during basic training as a key learning phase in a soldier's career.

Also of significance in the historical context of instructional system design is the theories of Robert Gagne. Similarly to Bloom (1956), he also suggested that learning activities could be categorised into various domains, as noted within his conditions of learning (1977). These domains included verbal information, intellectual skills, psychomotor skills, attitudes, and cognitive strategies, which are similar to Bloom's conception, however Gagne focused more specifically on these areas as opposed to Bloom's more generic, over-arching domains. He goes on to suggest that in order to accomplish effective learning, each aspect needed to be fulfilled, with each aspect requiring a different set of conditions to be facilitated.

Along with this, both Bloom and Gagne incorporated elements of 'mastery' within their theories i.e. in order to progress to the 'next level' the learner must first competently complete prior levels. There is a progressive nature within the Common Military Syllabus (CMS), e.g. recruits complete a series of live-firing practices, which progressively increases the distances and difficulty of live-fire rifle shooting. One of gaps identified when employing the CMS is the total amount of information that is required to be processed by the recruit, how much time they have to practice, and how much time is allocated to reflect on what has been taught (ARTD, 2014). It is these sorts of practical implementation of theory that this study is focussing on in order to facilitate the link between the two, for example examining whether recruits are effective reflective practitioners initially in order to then process the vast amount of information.

Other theories arose from this stage (see Fig. 2.1). This demonstrates that design is an ever-evolving process that requires constant reflection and adaptation to ensure that an effective programme of learning is in place. This process then organically heralds new instructional methodologies to be used within the British Army that are incorporated into updated instructor-training courses.

Figure 2.1 Instructional Design – Historical overview (Instructional Design Central, 2014)



One framework that has been widely used, including by the British Army, is the Analysis, Design, Development, Implementation and Evaluation (ADDIE) model. This model is the generic process traditionally used by instructional designers (Thomas et al, 2002). There are various adaptations of the ADDIE model, but it generally consists of five cyclical phases—Analysis, Design, Development, Implementation and Evaluation. These generic phases allow designers to adapt their course whilst using the phases as an underpinning structure, hence its popularity due to the accessibility. The ADDIE model is shown in Fig. 2.2.

Figure 2.2 ADDIE model for instructional design (Instructional Design Central, 2014)



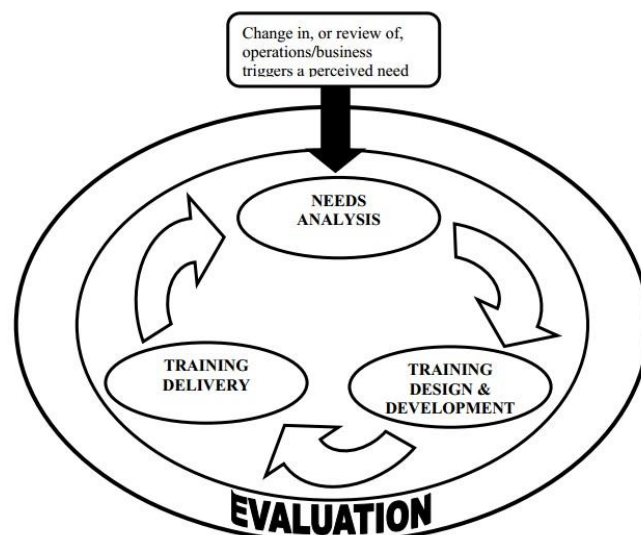
This is similar to the Army's version of instructional design and evaluation known as the Defence Systems Approach to Training (DSAT). The DSAT process illustrated in Fig. 3 demonstrates how the main process groups are needed for the comprehensive Analysis, Design and Development elements, which are reflective of the ADDIE model.

2.2.2 Defence Systems Approach to Training (DSAT) course design

The DSAT Quality Standard (MOD, 2001) directs a systematic approach of documentation to define and communicate training requirements, and to ensure control and procedures are in place. An Operational Performance Statement is derived through Task Analysis, and this forms the basis for the Formal Training Statement which describes the Training Objectives (TOs) to be covered in the formal training environment and workplace and defines any residual gap that cannot be trained. The Training Needs Analysis (TNA) process includes details of the assessment strategy that will be used to confirm TOs have been achieved. The DCTS Training Support Handbook (DCTS, 2007) on Instructional Design refers to Bloom's hierarchy for learning domains to define the TOs for the cognitive, psychomotor and affective domains.

The course design process that follows the TNA to produce lesson plans and assessments is, therefore, based on Bloom's which, in the opinion of the author, can be criticised for being hierarchical (having to go through lower-levels of understanding before progressing to higher order thinking) and favours instructor-led delivery methodology. Further progression into an andragogical, student-centred approach could be hampered if the traditional DSAT course design methodology is not adapted to consider an alternative taxonomy, for example, a revised taxonomy which accommodates metacognitive knowledge i.e. the Thinking Soldier, again, in the opinion of the author.

Figure 2.3 DSAT instructional design model (MOD, 2001)



Instructional design is essentially based on four main criteria: the learners, the content, the method of instruction, and the evaluation process (Merrill et al, 1994; Tennyson, 2010). However, based on observations by the author, other factors can affect the implementation, particularly in regard to military training. For example, leadership skills and team-ethos building need to also be in place within Phase 1. By the end of the training, recruits will be expected to work as part of a cohesive team, potentially in life and death situations. It is these types of situations, the ones that may come to the forefront of peoples' minds when you say "war" to them, which the recruits ultimately need to be prepared for. Whilst there is no specific lesson that addresses these issues, it has to be implemented within a 'hidden curriculum' underpinning military training. This is the uniqueness facing instructional designers at Phase 1 establishments, and it is the difference between instructional design for civilian counterparts; however, what this study hopes to achieve is to highlight areas to make the design more effective so that recruits are more prepared to face the challenges externally set by a rapidly changing world, and a changing army in accordance with the A2020 framework.

2.2.3 Summary of gaps related to instructional design

The areas highlighted have shown that there is a myriad of elements that can have an impact on any instructional design, particularly within a military context, which in turn can affect the facilitation of a cognitive approach to learning. For example, there could be too much information to digest and a lack of time for sufficient reflection could only compound the issue, potentially impacting recruits' motivational levels. These issues are very relevant to Phase 1 training; however, whilst there is sufficient theory and knowledge around course design, it has yet to be directly linked with the impressions of the recruits themselves. The Pilot Study explored these areas through interviews with stakeholder and Phase 1 recruits.

Main Study

2.3 Approaches to Learning

2.3.1 Pedagogy and Andragogy

Knowles (1984) asserted that andragogy (Greek: 'man-leading') should be distinguished from the more commonly used pedagogy (Greek: 'child-leading'). Andragogy assumes that the point at which an

individual achieves a self-concept of essential self-direction is the point at which he or she becomes adult psychologically. When this occurs the individual develops a need to be perceived by others as being self-directing.

There is an on-going debate between the definition of pedagogy and andragogy, and as Jarvis (1985) suggests, education from above is pedagogy, while education of equals is andragogy. Pedagogy is teacher-led and andragogy is more self-directed with the teacher as a facilitator. Pedagogy makes little allowance for past experience and is didactic, whereas andragogy considers experience as a rich source of learning and discussion and problem-solving techniques are used in the classroom. Andragogic approaches assume that:

- Adult learners need to know why they need to learn something before undertaking to learn it.
- Adults are responsible for their own decisions and are to be treated as capable of self-direction.
- Adult learners have a variety of experiences of life which represent the richest resource for learning. However, these experiences are imbued with bias and presupposition.
- Adults are ready to learn those things they need to know in order to cope effectively with life situations.
- Adults are motivated to learn to the extent that they perceive that it will help them perform tasks they confront in their life situations.
- Adult learning is problem-centred rather than content-oriented.
- Adults respond better to internal rather than external motivators.

The defining feature of the military learner is that he or she is an adult, bringing adult learning needs and aspirations to the training 'space'. As these learners gain experience and maturity through time, age and experience, they become increasingly 'adult' and increasingly able to extrapolate and apply their learning in an agile manner. The exception to this is with particularly young recruits, especially those at the Army Foundation and Technical Foundation Colleges. These adolescents are at the junction between pedagogic and andragogic learners. Military training deliverers need to examine their training regimes to determine to what extent they are adopting a pedagogic or andragogic approach (Phelan, 2011).

It should, however, be noted that there is a difference between training and education. Training refers to an act of inculcating specific skills in a person, whilst education is about gaining theoretical knowledge in the classroom or any institution (Garavan, 1997). Training can be regarded as merely learning by doing and is used to develop skill-sets of what is required from the job i.e. employees know what they are training for, which is currently what Phase 1 training aims to achieve based on the Training Objectives. However, training designers are now looking to *educate* the recruits in accordance with the Agile Warrior concept. This involves assimilating lessons learned during the process of education, preparing recruits for future, unknown circumstances with the purpose to develop a sense of reasoning and judgement. This would require a significant re-design of the current programme in order to incorporate education along with the necessary training required.

2.3.2 Behaviourism

Whilst the focus of this research is based on examining a constructivist approach, the de-facto instructor trainer courses that the British Army use are based on a behaviourist approach. Behaviourism emphasises the role of environmental factors in influencing behaviour, to the near exclusion of innate or inherited factors i.e. we learn new behaviour through classical or operant conditioning (Skinner, 1948). However, whilst it could be argued that military training still entails a large degree of conditioning to certain responses (e.g. what to do in a fire-fight), the Army is attempting to also incorporate and ability to develop cognitive ability via employment of a constructivist approach.

2.3.3 Constructivism and Andragogy

Early forms of constructivism were based on the work of Piaget (1970a, 1970b, 1985) and Vygotsky (1978) identified in cognitive learning theories. They suggested that the learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective. Brown (2004) explains that constructivists believe learning is through building mental models to interpret the world; as the models become more sophisticated, so does understanding of the world. Experience and knowledge are filtered through the learner's perceptions and personal theories. The process is dynamic and as new knowledge is assimilated, it is fitted into the existing schemata until there comes a point when new experience and knowledge are in conflict with the existing schemata, so the schemata change – or the new knowledge is rejected.

Brown (2004) explains the role of the teacher is to help students to explore and develop their constructions of the subject which they are studying. This may be achieved through:

- Ascertaining and activating prior knowledge and existing concepts through discussion, tasks or the use of mind maps. This process activates the schemata and ensures the mind is ready for new learning.
- Creating a supportive climate in which students feel safe enough to reveal their conceptions of what they are studying and how they study.
- Helping the students to deconstruct existing concepts and rebuild more sophisticated ones through the use of challenging questions, problems, tasks, discussion and study guides.
- Encouraging students to think and reflect on the processes of learning in their subjects and their underlying epistemologies.

Every subject has its own ways of thinking, core concepts and ways of perceiving the world, which students need to develop if they are to gain expertise in their subject (Brown, 2004). As such, andragogy and constructivism are inextricably linked. It is particularly pertinent where the generation of constructs, concepts and meaning are required rather than lower order outcomes of applied skills and knowledge.

2.3.4 Constructive alignment

Constructive alignment is being recognised within vocational education as a learner-centred approach to achieve spontaneous high-order learning - 'Constructive' being what the learner does and 'alignment' being what the teacher does (Biggs, 2002). Constructivist learning designers devise teaching and

learning activities, and assessment tasks, that directly address the learning outcomes intended in a way not typically achieved in traditional lectures, tutorial classes and examinations (Biggs and Tang, 2007).

A review of the academic literature related to the instructor's role in a constructive approach to training indicates a need to change from teacher to facilitator. That is, a teacher gives a didactic lecture, a facilitator helps the student to achieve their own understanding of the lesson content. In the former the learner remains in a passive role whilst in the latter he/she plays a more active role. The constructivist approach requires trainers to adapt to the role of facilitator and not teacher. Brooks and Brooks (1993) identified that a facilitator is required to adapt to a new set of skills, including being able to:

- Encourage and accept student autonomy and initiative.
- Search out students' understanding and prior experiences about a concept before teaching it to them.
- Encourage communication between the teacher and the students and also between the students.
- Encourage student critical thinking and inquiry by asking them thoughtful, open-ended questions, and encourage them to ask questions of each other.
- Use follow up questions and seek elaboration after a student's initial response.
- Put students in situations that might challenge their previous conceptions and that will create contradictions that will encourage discussion.
- Provide enough time for students to construct their own meaning when learning something new.

The concept of constructive alignment puts the constructivist approach under a degree of discipline and order that is more attractive to the military requirement and gives the inexperienced instructor more form and guidance in the application of knowledge construction (rather than knowledge transfer) approaches. Apart from some elements of foundation and recruit training the bulk of military training is adult based. This exposed the need to build on experience and to appreciate adult self motivation and direction, which, in turn, is likely to encourage self-directed and problem based learning strategies. The conclusion is that adult-based, student-centred learning and development approaches with facilitative instructors are widely accepted.

However, whilst in theory the idea of a constructivist approach to learning makes sense, in practical terms it might not be realised. A study conducted by Ebert-May et al., (2011) who followed 77 teachers for one year through a professional development training programme, observing their actual teaching in practice in the classroom at various points in time, indicated that although the teachers thought that the training helped them to become more constructivist and student-centred, in practice their teaching practice remained the same. In other words, changing teaching approaches of instructors might be inherently difficult, and may need substantial incubation time as well as senior management support.

Both teacher and student-centred approaches have their place in education, seemingly the challenge for the Army is to strike a balance that works for the learners, as well as the subject matter. The work of Dale (1969) during the 1960s argues that student-centred learning results in greater learning and

retention. His Cone of Experience summarises his theory and research and is consistent with the constructivist perspective that, if students are to learn, they must be actively engaged in the process.

This led to the inclusion of student-centred techniques within the DTTT course. This course has been the first to pilot the inclusion of the PAR model developed by Petty (2009). The purpose of its inclusion is to move the centrality of the learning experience from the instructor to the student, allowing students to take more responsibility for their own learning as well as developing thinking skills (Petty, 2009). This in turn will hopefully encourage motivation, self-regulated learning and reflective practice.

2.4 The PAR Model

For effective learning to take place, instructors should involve activities that process new material and help to link it to what the student already knows. However, the activities should be set within the context of the learner i.e. military training and should not involve simply repeating back facts and figures as this only affects surface learning (Petty, 2009). The model consists of three stages:

- Present new material
- Apply this new learning (student activity)
- Review the skills learned this lesson

Present

The student is presented with the new knowledge, concepts, skills, theories, explanations etc. Explanations are given, or better, constructed by the student, to persuasively link the material to prior learning and experience. Some methods include:

- Teacher talk and Q&A to check
- Video, ILT/ICT, other visual aids
- Reading written material
- Students discovering for themselves
- Peer explaining

Apply

The student carries out an activity that requires them to apply the material presented i.e. learning by doing. Methods could include:

- Question and answer
- Exercises and examples
- Worksheets
- Past paper questions

- Problems to solve
- Evaluation of a case study etc.

As errors and omissions in their conceptions are discovered the student corrects and adds to their learning. This is facilitated by:

- Self-assessment, self-checking etc.
- Peer checking and peer explaining
- Acting on feedback from the teacher
- Comparing own work with other answers or model answers
- Doing corrections or completions to improve work

The apply phase makes the learning 'visible' to the student and the teacher so enabling correction and improvement.

Review

The key points are confirmed and emphasised with explanations that link the new learning with former learning. This strengthens the links that will be used during subsequent recall. The model can be made more fluid by the instructor, for example having more than one 'present' and 'apply' phases in a lesson. The idea is that the three phases are required to be included but the order is not vital.

Petty (2009) suggests that the PAR model is one that can facilitate a constructivist approach whilst keeping a structure to session planning. He states that optimal learning occurs when no more than 35% of instructional time is spent on the presentation of new material, at least 60% of instructional time allows students to actively apply concepts, and no less than 5% of instructional time is spent on reviewing learning or material (Petty, 2009).

This model can be applied to instructing within the military context. The lesson structure overview, which can be seen in Table 2.1, is similar to methodologies currently being employed such as Explain, Demonstrate, Imitate and Practice (EDIP) and Brief, Monitor, Debrief (BMD). These methods have sections with varying time allocations, for example the Practice element of EDIP is the longest of the four parts, and it is not too dissimilar in terms of structure: essentially there is an introduction, a main body and a summary. This would be familiar to instructors given their experience and attendance on other instructor courses such as DIT, meaning that the implementation of PAR would be under a similar status quo.

However, the fundamental difference lies within the recruits engaging with learning as opposed to the instructors simply delivering information. A consequence of this is the amount of time that would be allocated to each lesson. Whilst this would possibly not be an issue when designing a programme of learning, Phase 1 training has already been designed using a behaviourist delivery system in how the instructors instruct the lessons. As such, tools that could be employed, such as group discussions, would

generally take longer to provide sufficient time for recruits to engage in peer learning (Kirschner, 2002) when attempting to *add in* the extra time. This would also then require further Review sections in order to assess recruit learning. This could, in the author's opinion, be a condition that prevents the effective use of PAR as the vehicle for a constructivist approach to learning within Phase 1 training programmes.

Table 2.1 PAR Lesson Structure (Petty, 2009)

Present	Apply	Review
<p>Learning goals are explained. Objectives are given Advanced organiser used (review of link to prior learning). Persuasive account of the relevance and importance of the work.</p> <p><u>New material is presented</u> Knowledge, reasoning, theories etc. are presented to students. Abstract ideas are illustrated with concrete examples. Skills are demonstrated e.g. how to use a tool or process. Demonstration stresses both process (how) and product (why). Key points are emphasised.</p> <p><u>Learning Strategies</u></p> <ul style="list-style-type: none"> • Listen to teacher talk. • Watch a teacher or student demonstration. • Watch a video. • Use resources such as hand-outs, Internet etc. • Independent learning. • Teaching by asking e.g. group discussion. <p>Use +/- 30% of time</p>	<p>Students are given tasks that require them to apply the knowledge, theories, skills etc. that have just been presented. This involves them in problem-solving, making decisions, creating visual representations of learning, mind-maps, diagrams etc.</p> <p><u>Learning Strategies:</u></p> <ul style="list-style-type: none"> • Practical tasks (e.g. learning a practical skill). • Group discussion. • Case study. • Exercises, questions, worksheet, essay etc. • Presentations. • Critical evaluation of exemplars. <p>Teacher should:</p> <ul style="list-style-type: none"> • Check attention to task, behaviour etc. • Check and correct work in progress (assessment for learning). • Discover those who need help and provide this. <p>Use +/- 60% of time</p>	<p>What was to be learned is summarised and clarified, with emphasis on the key points. Especially important at the start and finish of topics and lessons.</p> <p><u>Learning strategies:</u></p> <ul style="list-style-type: none"> • Q&A. • Create a mind-map, poster or hand-out that summaries the key points. • Stressing the importance and relevance of the work. • Reviews at the beginning of next lesson. • Short task at the beginning of a lesson. • Key points at the end of a topic. • Peer explaining of key objectives followed by check by the teacher. • Quiz, test, assessment of learning. <p>Use +/- 10% of time</p>

Whilst this may have an effect on the structure of the instructors' lessons, of greater importance is the ability to assess whether the methodology has had a positive effect on the recruits. Due to the nature of lessons delivered at Phase 1 training, often the learning is intangible, meaning that it can be difficult to ascertain learning without regular formative assessment. However, as highlighted in Section 2.4.2, there are various benefits of using a constructivist approach, for example encouraging communication skills, that could be used as markers for measuring effectiveness. This creates a wide selection of potential choices to use as constructs for measuring the effectiveness of PAR in Phase 1 training.

However, whilst there is a variety of constructs to choose from, some pose more relevance than others. For example, it would be relatively straightforward to use fitness levels as a measure of effectiveness,

however this does not provide appropriate evidence that the recruits have developed within the cognitive domain, and therefore exhibiting qualities of a thinking soldier. Whilst these factors are further developed during promotional courses, these can be years apart, with Phase 1 potentially being the earliest point of setting expectations of new soldiers.

The underpinning qualities of the Agile Warrior concept as described by Liddy (2010) are that the soldier needs to be motivated, not only in regard to physical development, but also in their approach to learning. They need to possess a self-awareness that encourages individual learning and to be able to reflect on what they have learnt in order to continuously, and autonomously, improve. As such, the ability to reflect (Hays & Gay, 2011), self-regulated learning (Duckworth et al, 2009) and motivation (Ryan & Deci, 2000) are the three areas that were selected to act as the constructs for measuring the effectiveness of the constructivist approach through the PAR methodology. As such, these elements can potentially help move training from behaviourism towards constructivism. These constructs will be further examined in Sections 2.5.1 and 2.5.2.

2.4.1 Reflection

Phelan (2011) suggests that the Defence organisation needs to create a learning environment within which there is time and space for critical reflection. This is important because critical reflection enables deeper understanding and, as a consequence, more agile troops. Phelan (2011) goes on to suggest that the embedding of critical reflection into the workplace would need to be considered at a number of different levels:

- At a high level, throughout the DSAT process.
- At course design level to build time and methods for critical reflection into training materials.
- At instructor level in terms of choosing tools to aid the process.

Reflection is a process of systematically engaging with and exploring experiences, applying “serious and sober thought at some distance from action” with the intention of arriving at a “new understanding and appreciation” (Louden, 1991, p.148). In effect, reflection is therefore a process of learning. To one extent or another we all reflect upon our experiences (Moon, 2004) and potentially learn from them. As a concept it is not new; it has been a central tenet of adult learning, self-directed learning and professional practice for many years. It is recommended as a way for professionals to examine and understand their performance in order to develop through continuous cycles of reflection on practice (Hays & Gay, 2011). During these cycles, reflective learners generate the evidence necessary for informing continual adjustments to their practice; a lack of reflective ability may result in poor insight and poor performance. Reflective learning can move the individual from the kind of surface learning associated with committing to memory terminology, memorising formulae or identifying concepts through to the deeper learning required in order to adapt and apply formulae and concepts, solve problems and create new theory (see, for example, Cottrell, 1999; Biggs & Tang, 2007).

The many definitions of reflection found across the literature of learning and development indicate how broadly the concept is interpreted. Fook (1999) describes it as “the ability to locate oneself in a situation through the recognition of how actions and interpretations, social and cultural background and personal history, emotional aspects of experience, and personally held assumptions and values influence the situation” (p.199). Such descriptions indicate how deeply personal a process it can be. Although

reflection is a highly valued activity and its development a goal in many training and education contexts, views of reflective practice such as that of Fook (1999) give rise to the reasons often given for why it has gained a reputation as a “passive and ‘naval-gazing’ activity” (Fry et al, 2003, p.215). Hays & Gay (2011) acknowledge that reflection has an important role to play in learning. However, they observe that, at least in postgraduate medical education, assessment of reflections during training and strategies aimed at improvement of work-based clinical practice are often not closely integrated. That is to say, how it is taught does not always influence transfer to the working environment as well as it could. Their comment paints a wider picture wherein the teaching and assessment of reflection are not, despite several decades of use in education and professional training contexts, fully understood and therefore it remains a poorly taught skill. As such it is important that in order for recruits to reflect effectively, they must be taught correctly in the first instance.

The result is the formation of personal theories and development of professional knowledge, judgement and expertise (Paterson & Chapman, 2013). There are many models of reflection which can be introduced into curricula or adopted and applied by learners in a variety of contexts (see, for example, Boyd & Fayles, 1983; Boud, Keogh & Walker 1985; Gibbs, 1988; Johns, 1995). These all provide theories of reflection accompanied by visual representations of what is involved in the processes of learning from reflection. An important aspect of these models, particularly Gibbs’, is that the individual is encouraged to address affective aspects of the process i.e., what they were feeling and their emotions at the time of the experience upon which they are reflecting. Attending to feelings and emotions is necessary in order to prevent them distorting perceptions of the experience and blocking understanding thus inhibiting further reflection and learning (Boud, 2001). Schank (2005) recommends reflection as a key process of “learning by doing” within a cycle of practice, attending to feedback, and reflection on feedback.

One model that has been widely adopted in training and education to support individual learning is Kolb’s experiential learning theory (Kolb, 1984) in which learning is defined as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping, and transforming, experience” (Kolb, 1984, p. 41). Moon (2004) views this kind of knowledge as the product of learning as opposed to the process. Kolb’s experiential learning theory is the result of influence by several learning theorists of the twentieth century including Lewin, Piaget and Maslow (1987).

Merriam (2004) suggests that while transformative learning involving critical reflection and all it entails is good, it assumes a higher level of cognitive development and that many adults have not attained the levels of cognitive functioning necessary to participate. This may be a critical factor in terms of the recruits’ educational backgrounds as many have the minimal standard required to join the Army i.e. D grade in English and Maths GCSEs. Moon (2004) however suggests that everyone can reflect though it may not be a conscious activity and that we cannot assume that they use it effectively in performance improvement. Following from these views, it can be assumed that conscious critical reflection does not come naturally to many people and requires individuals to acquire skills of self-awareness, description, critical analysis, synthesis, and evaluation intrinsic to the process of learning through reflection. To facilitate this, recruits need to be taught how to reflect to improve their performance, in particular the ability to reflect on feedback that they receive from instructors and peers on a daily basis.

2.4.2 Self-Regulated Learning (SRL) & Motivation

Another important component of the constructivist theory is self-regulated learning (SRL). Self-regulated learners are those who are aware of their strengths and weaknesses, have knowledge of effective learning strategies and know when and how to employ those strategies (Duckworth et al, 2009). SRL refers to the actions taken by the learner to plan for, execute and analyse their completion of a learning task (Zimmerman, 2008). This process could be sub-conscious; however, it can be effective if the learner is able to control the learning. SRL is suggested to be the process in which students take an active role in managing their own learning in terms of motivational, cognitive and behavioural aspects (Pintrich, 2004). This management is obtained through their engagement of a variety of other aspects such as goal setting, linking up prior knowledge to current environment, progress monitoring, regulation of learning strategies, and reflection (Pintrich, 2004; Winne and Hadwin, 2008). This is supported by research conducted by Toering et al (2012) suggested that SRL is measurable when observing six subscales including planning, self-monitoring, evaluation, reflection, effort and self-efficacy. However, the self-report scale that was developed as part of their research was not employed within this thesis. Across these various aspects, the two most relevant to this study are the regulation of learning and motivation.

The motivation of recruits is a key factor when applying self-regulation. Instructors are required to encourage recruits to identify personal goals that can be achieved and reflected on upon review. When providing feedback, instructors should focus on these processes and strategies as opposed to the performance of the recruit in order to help them to develop self-monitoring capabilities. Five attributes of a self-regulated learner were identified by The Campaign for Learning (2013):

- **Readiness** – motivation, curiosity, self-efficacy.
- **Resourcefulness** – learn with and from others, learn creatively use information and ICT, use different learning styles, apply what has been learned.
- **Resilience** – keep going, learn under stress, and manage negative emotions.
- **Reflectiveness** – review own learning and performance to improve.
- **Responsibility** – take ownership of own learning, identify and express strengths and weaknesses, set personal learning goals, seek and offer help to peers, work collaboratively towards group learning goals.

The effective use of strategies, such as these ‘five Rs’, that promote learning, understanding and achievement have been central to SRL as a concept (Pintrich 2004; Winne and Hadwin 2008). Overall, the use of SRL strategies is evidenced as being positively associated with students’ achievement within an academic context. It is apparent that the correlation is stronger when examining students’ use of cognitive and metacognitive strategies (Pintrich and Zusho 2007).

Research conducted by Schwinger et al. (2009) shows that college students have multiple motivational regulation strategies that, when employed, are associated with increased persistence, effort and academic performance (Wolters 1998). There is also evidence that demonstrates that students who reported greater time management tended to have improved grades (Claessens et al. 2007; Macan et

al. 1990). This links directly to the ability of the recruits to not only receive constructive and timely feedback, but to also have the time to employ self-regulatory strategies to best effect.

Achievement represents another vehicle in which to better comprehend the academic ability of students (Bartels et al., 2002). Motives linked to wanting to be both successful and avoid failure have been used to explain the motivation of students, especially in regard to their goals (Bartels et al., 2002; Michou et al., 2013). By contrast, the fear of failure and other avoidance motives have been linked with performance-avoidance goals and assessment anxiety (Bartels et al., 2002), increased use of ineffective strategies (Diseth and Kobbeltvedt, 2010) and increased levels of self-handicapping, procrastination, and other indicators of poor self-regulation (Chen & Cleary, 2009). This demonstrates that motivation is a critical factor in self-regulated learning with appropriate forms needing to be selected for recruits as individuals.

Models of motivation that are used should specifically target the learning process and has a common application across different learning contexts. There are various forms that motivation takes when included within SRL, for example setting and achieving goals, interest, attributions and perceived self-efficacy (Winne and Hadwin 2008).

However, a significant barrier to learning, especially amongst the less able learners, who constitute a significant proportion of army recruits, is low confidence or belief. This is manifested in the distinction drawn between the active learner versus the passive learner. The need to address and adjust trainee attitude to learning is supported by 'hard' learning skills. Feedback on learning achievement, and therefore motivation for further learning, is the single biggest factor in learning effectiveness.

2.5 Instructor Training

2.5.1 Current approach to Defence instructor training: DTTT

The MOD is moving towards a more student-centred, work-based training regime as a result of the introduction of the Army Instructor Functional Competency Framework (DETS(A), 2012). This framework is being used as the basis for a Defence Instructor Functional Competency Framework, currently under development by DCTS. The framework includes such competencies as "*learning events that are learner-centric*" and "*facilitating individual learning and development*" as well as work-based training, individual learning needs, self-reflection and individual learning goals. This framework is captured in the creation of the latest (version 2) Defence Train The Trainer (DTTT) course. This course is aimed at instructors involved in Phase 1 and/or Phase 2 training, with the emphasis of DTTT on a more inclusive training delivery style.

Whilst the facilitation lesson structure within DTTT is behaviourist in its approach, the concept of constructivism is introduced – that students can learn by exploring rather than being taught in a didactic way, where information is delivered to the learner. The constructivist approach (Cooper, 1993) is based around the premise that the whole learning experience needs to be highly adaptive to the student. A constructivist approach places the instructor in the role of a facilitator - providing all the information necessary for learning but allowing the students to learn the materials in the manner that is most comfortable for them. It relies heavily on the individual student's initiative and allows students to learn at their own speed. As learning is deemed to be an active social process (Bandura, 1977), collaborative discovery-based learning techniques are encouraged.

The course gives instructors information on the characteristics of student-centred learning, considerations for implementation of a student-centred environment and guidance on the role of both the instructor and the student in this type of environment. The differences between instructor-centred and student-centred learning are highlighted to give a clear indication of how different the approaches are. Given that the focus of the DTTT course is on a more inclusive, constructivist approaches to learning, there is an emphasis on coaching skills. Coaching skills and mentoring skills have become more prevalent as an add-on to traditional training methods. Similarly, the US Army has been developing a training framework that focusses on placing learning with the student rather than with the instructor.

2.5.2 The US Army Learning Concept

The United States Army have developed a vision of an enhanced learning environment which is focussed on lifelong, learner-centred training. This vision has been published as a US Army Training and Doctrine Command (TRADOC) (TRADOC, 2011), the purpose of which is to describe the learning environment the US Army wanted to achieve by 2015. The US Army Learning Concept 2015 (ALC2015) focussed upon:

- How the Army can train and educate soldiers and leaders in individual knowledge, skills and attributes.
- Establishing a culture of learning from joining to retiring, the responsibility of which rests with everyone - training schools, tactical units and the individual.
- Improving learning by better use of technology without compromising standards.
- How technology can enhance learning by increased use of blended learning.

TRADOC (2011) “describes a learning continuum that blurs the lines between the Operational Army and the Generating Force by meshing together self-development, institutional instruction and operational experience” (p.5). Whilst acknowledging the requirements of learners who have grown up in a digital world, requiring support and feedback from peers and mentors, the US Army also recognise the necessity of meeting the needs of their more seasoned professionals who bring a vast amount of knowledge and experience to the training system.

The current learning model is designed to support a peacetime Army and unsuitable for the current ways of doing business; the model having limited capability for innovation. TRADOC (2011) describes the approach as instructor-led and not co-ordinated with learners’ needs; mandatory subjects take over learning programmes and time for reflection needed to master topics is not available. Instructors are not selected for posts but assigned arbitrarily and the posts are not always viewed as career-enhancing.

In terms of moving forward, the US Army take the view that learning science needs to underpin any changes in its education system. A review of research highlighted that no one strategy fits all. When making decisions regarding instructional strategy and media selection, ALC2015 deems the following elements as important:

- Learning is promoted when prior knowledge is activated prior to learning new knowledge so demonstration and application must be based on real-world problems.
- Learning must be transferred to an operational environment. Elements that influence transfer are cognitive ability, self-efficacy and motivation; enhanced by mastery experiences and specific feedback.

- Lifelong learning. Soldiers need to become expert, self-motivated learners, capable of asking questions and in possession of digital literacy skills.
- Holistic integration of Army training, education and experience.
- To encourage critical thinking, complex problem-solving and providing the tools to access relevant performance-related information.

ALC2015 views the practical manifestation of the continuous learning model as context-based, collaborative, problem-centred instruction using learner-based experiential methodology. Blended learning is viewed as a powerful learning experience which leverages technology. Technology driven instruction could add flexibility to the timetable as knowledge and comprehension type learning objectives could be worked on outside of the classroom, whilst travelling for example. This could free up classroom training time to concentrate on collaborative learning, within small groups, with the instructor as a facilitator.

Cianciolo et al. (2011) carried out research for the US Army into the competencies required for problem-based learning. They noted that there is an inextricable link between collective action, individual experience and learning and that an instructional method that recognises that link is required when preparing soldiers to learn via problem-solving experiences. In order to implement student-centred instruction, (including problem-based learning) a combination of conscientious work-habits, problem-solving skills and domain knowledge is required from military instructors as well as a promotion of lifelong learning and development of others.

The report concludes that there is a similarity between civilian educators and military instructors in regard to problem-solving capability, personality, education-related beliefs and subject matter expertise. In contrast, there is an inconsistency in regard to the characteristics of civilian educators when delivering problem-based or student-centred learning (Borko and Putnam, 1996). There is still domination by teacher-led instructional methodologies within civilian education, leading to the production of subject matter that is no more than a list of facts, a one-way transmission of knowledge, and passive participation by students in the learning process.

Given that it is difficult to alter beliefs; an implication of the similarity between civilian educators and military instructors is that the military will be faced with similar challenges when attempting to implement student-centred, problem-based learning. Along with this, the changing nature of warfare and the environment in which the military operates could see a decline in the number of instructors as subject matter experts. With the high tempo of operational deployments ongoing, military instructors will face a significant challenge in maintaining and developing their relevant domain knowledge. However, the report and methodological update of the British Army in moving towards a more student-centric approach highlights an adaptation within the learning culture of the organisations.

2.6 Conclusions

In summary, this chapter has outlined the research relevant to training design as well as instructor training and delivery methodologies that are applicable to the military training environment, including targetable aspects of the learning theories such as motivation, SRL and reflection.

In doing so, the following research questions were adopted:

RQ 1: How effective is the instructional design at Phase 1 training establishments? (Pilot Study)

RQ2: What was the impact of PAR on recruits in regard to motivation levels? (Chapter 4)

RQ3: What was the impact of PAR on recruits in regard to self-regulated learning? (Chapter 4)

RQ4: What was the impact of PAR on recruits in regard to their reflective practice? (Chapter 4)

RQ5: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' motivation levels? (Chapter 5)

RQ6: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' self-regulated learning? (Chapter 5)

RQ7: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' ability to reflect? (Chapter 5)

Chapter 3 outlines the overarching research methodologies that were used to address these research questions.

Chapter 3 – Methodology

3.1 Introduction

A critical overview of current knowledge was provided in Chapter 2 that highlighted current gaps that the research questions propose to address. Chapter 1 noted that this thesis comprises of a pilot and main study. These are described in detail in Chapters 4, 5 and Appendix 2, which include an in-depth description of the methods used specifically for those studies. As such, this chapter outlines the underpinning methodologies employed by the two studies. Using robust and reliable research methodologies is crucial to effectively address the research questions of this thesis, namely:

RQ 1: How effective is the instructional design at Phase 1 training establishments?

RQ2: What was the impact of PAR on recruits in regard to motivation levels?

RQ3: What was the impact of PAR on recruits in regard to self-regulated learning?

RQ4: What was the impact of PAR on recruits in regard to their reflective practice?

RQ5: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' motivation levels?

RQ6: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' self-regulated learning?

RQ7: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' ability to reflect?

In this chapter, an overview of the theoretical perspectives that underpinned the research is provided in Section 3.2. Section 3.3 includes the overarching research methods used for the studies along with discussing the implications of each one. Section 3.4 then provides ethical considerations relevant to the studies.

3.2 Theoretical Perspectives and Philosophical Underpinnings

When a research study is being designed, the research must select appropriate and effective methodologies that take into account the underlying assumptions (Crotty, 1998; Potter, 2006). Those underlying philosophies that underpin research design are continuously providing a context that informs the methodology and grounds it in criteria and logic (Crooty, 1998). It was important for the research conducted in this thesis that various philosophies were adopted to underpin the two studies. Section 3.2.1 outlines the pragmatic paradigm adopted in the research. Section 3.2.2 then describes advantages and disadvantages of qualitative and quantitative research methods with Section 3.2.3 outlining the use of mixed methods as a methodology.

3.2.1 Pragmatic Approach

Chapter 2 provided an in-depth discussion of the research questions that were set out by this thesis (outlined in Section 3.1). Research paradigms are essentially the underlying philosophical views that the researcher employs when conducting research. Paradigms can be described as, 'the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed' Kuhn (1962, p.10). Further to this, the researcher must consider any assumptions regarding

ontology and epistemology. Firstly, ontology describes the nature of truth, or reality, while epistemology focuses on the nature of human knowledge of truth in realising what reality is (Mertens, 2014). In Table 3.1 compares some of the more prominent research paradigms, including their relevant ontological and epistemological underpinnings.

Table 3.1 Comparison of popular research paradigms

Paradigm	Ontological views	Epistemological views	Methodology examples	Method examples
Positivism	There is one single truth	Reality is measurable with valid, reliable tools	Experiments Questionnaires Big Data	Quantitative analysis Sampling Measurement Statistical analysis
Interpretive / Constructivism	There is no one single truth because group membership constructs truth	Reality must be interpreted through the lens of group members	Ethnography Grounded Theory Action Research Discourse Analysis	Qualitative analysis Interviews Observation Case study Narrative
Critical	There is no one single truth because truth is socially constructed	Reality is socially constructed and must be interpreted through the lens of society	Critical Discourse Analysis Critical Ethnography Action Research	Qualitative analysis Interviews Observations Focus groups Journals
Subjectivism	There is no one single truth because truth is interpreted through our own individual perceptions	Reality is based purely on the perspective of the individual researcher	Discourse Theory Deconstruction	Qualitative analysis Interviews Auto-ethnography Semiotics Literary analysis
Pragmatism	There is no one single truth because truth should constantly be debated and reinterpreted in light of new circumstances	Reality can be discovered by the method that suits the problem best	Mixed Methods	A combination of any of the above

Based on: (Mittelmeier, 2017; Bryman, 2008; Creswell & Plano Clark, 2007; Crotty, 1998; Gilbert, 2001; Potter, 2006)

The research questions set out in this thesis were multifaceted and overlapped with a number of research paradigms. For example, the examination of measurable recruit behaviours utilising quantitative methods is essentially positivistic in nature and assumes that experiences can be measured using robust methods, i.e. capturing recruits' thoughts both at the start and end of their training programme.

On the other hand, it is recognised that there were a multitude of factors that may have influenced the recruits' experiences of Phase 1 training, for example the instructors, their peers and their own idiosyncrasies, and therefore could not be restricted by a single assumption. As such, a pragmatic approach is required to address the research questions by employing a mixed methodology. Pragmatism, in this regard, can be described as both objective and subjective and may be in contention with one another as they are multifaceted approaches (Creswell & Plano Clark, 2007; Feilzer, 2010). Feilzer (2010, p. 9, in Mittelmeier, 2017) suggests that:

'Ultimately, pragmatism brushes aside the quantitative/qualitative divide and ends the paradigm war by suggesting that the most important question is whether the research has helped "to find out what [the researcher] want[s] to know" (Hanson, 2008, p. 109). Are quantitative and qualitative methods really that different or is their dichotomy politically motivated and sociologically constructed (Hanson, 2008)? Pragmatists do not "care" which methods they use as long as the methods chosen have the potential of answering what it is one wants to know.'

This sentiment is concurred by Tashakkori and Teddlie (1998, P.30) who suggest that the pragmatist should 'study what interests you and is of value to you, study it in the different ways that you deem appropriate, and utilise the results in ways that can bring about positive consequences within your value system.' This suggests that pragmatism is an integral element of using a mixed methods approach to research, as well as choosing the appropriate methods that effectively adhere to the research questions (Maxcy, 2003). As such, Section 3.2.2 provides a description and reasoning for the inclusion of mixed methods as a methodology for this thesis.

3.2.2 Qualitative and Quantitative research methods

In accordance with the pragmatic school of thought, as opposed to being a purist or situationalist (Rossman and Wilson, 1985), the research conducted within this thesis used a combination of qualitative and quantitative approaches. Austin and Sutton (2015, pp. 228) state that "qualitative research can help researchers to access the thoughts and feelings of research participants, which can enable development of an understanding of the meaning that people ascribe to their experiences. Whereas quantitative research methods can be used to determine how many people undertake particular behaviours, qualitative methods can help researchers to understand how and why such behaviours take place."

Equally, quantitative research is used to quantify a problem by way of generating numerical data or data that can be transformed into usable statistics (Nielsen, 2011). It is used to quantify attitudes, opinions, behaviours, and generalise results from a larger sample population and are much more structured than qualitative data collection methods. Qualitative and quantitative research methods do contain their own specific advantages and disadvantages, which are outlined in Tables 3.2 and 3.3.

Table 3.2 Advantages and disadvantages of qualitative research

Advantages	Disadvantages
Rich, in-depth detail is possible (e.g. participants can elaborate on what they mean)	Not always generalisable due to small sample sizes and the subjective nature of the research
Perceptions of participants themselves can be considered (the human factor)	Conclusions need to be carefully hedged
Appropriate for situations in which detailed understanding is required	Accusations of unreliability are common (different results may be achieved on a different day/with different people)

Based on: (Mittelmeier, 2017; Bryman, 2008; Cohen, Manion, & Morrison, 2011; Creswell & Plano Clark, 2007; Greene, Caracelli, & Graham, 1989)

Table 3.3 Advantages and disadvantages of quantitative research

Advantages	Disadvantages
Larger sample sizes often make the conclusions from quantitative research generalizable	Does not always shed light on the full complexity of human experience or perceptions
Statistical methods mean that the analysis is often considered reliable	Can reveal what / to what extent, but cannot always explore why or how
Appropriate for situations where systematic, standardised comparisons are needed	May give a false impression of homogeneity in a sample

Based on: (Mittelmeier, 2017; Bryman, 2008; Cohen, Manion, & Morrison, 2011; Creswell & Plano Clark, 2007; Greene, Caracelli, & Graham, 1989)

3.2.3 Mixed Methods as a Methodology

Mixed methods are often characterised as a combination of qualitative and quantitative methods (Johnson, Onwuegbuzie, & Turner, 2007). Inherent to its design, a mixed methods approach is described as the inclusion of multiple methods to address one or a number of research questions (Creswell & Plano Clark, 2007). Creswell and Plano Clark (2007) describe the inclusion of a mixed methods approach a methodology in its own right as the combination of a number of approaches can provide a more holistic understanding of the issues being investigated by the research than they would separately.

The research questions that have been set for this thesis required an analysis of not only the objective data regarding the training design and instructional methodologies pertaining to recruits' learning (RQs 1, 2, 3 and 4), but also the subjective interpretation of recruits' experiences of Phase 1 training (RQ 5, 6 and 7). As such, a mixed methods approach facilitated a number of research perspectives. The underpinning approach adopted in this thesis is that the most appropriate method is the one that most effectively addresses the research questions (Johnson, Onwuegbuzie, & Turner, 2007). Table 3.4 outlines the advantages and disadvantages of using a mixed methods approach:

Table 3.4 Advantages and disadvantages of mixed methods research

Advantages	Disadvantages
Draws upon the strengths and balances the weaknesses of individual methods	Often takes more time and effort than single-method studies
Allows for 'triangulation' of data by combining multiple lens or approaches to a problem	Researchers must have a wider set of skills to conduct research rigorously
Provides for a more well-rounded understanding of the problem	Requires large amounts of planning to rigorously 'mix' the data from multiple methods

Based on: (Mittelmeier, 2017; Bryman, 2008; Cohen, Manion, & Morrison, 2011; Creswell & Plano Clark, 2007; Greene, Caracelli, & Graham, 1989; Symonds & Gorard, 2010)

Using a mixed methods approach provides multiple benefits attempting to address complex issues in research, such as those raised in this thesis. By including several methods, the researcher can utilise the strengths of method as well as mitigating against its inherent weaknesses (Symonds & Gorard, 2010). The term *critical multiplism* was described by Cook (1985) as to how combining different research methodologies can be beneficial when mitigating the biases inherent to the individual research methods. As such, the incorporation of several methods within this thesis provided a greater understanding of the complex nature associated with experiences of Phase 1 training. The advantages and disadvantages of the selected approaches that were used for the research are described further in Section 3.3.

An advantage of using mixed methods is that it facilitates the triangulation of data by synthesising multiple interpretations to an issue. Cohen et al. (2011, p. 195) described 'triangular techniques in the social sciences that attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint.' This is concurred by Greene et al. (1989) who recommended five outcomes of mixed methods research:

1. **Triangulation:** converging the results of multiple methods
2. **Complementation:** reviewing where findings from different methods overlap
3. **Initiation:** discovering contradictions in findings between different methods
4. **Development:** allowing results of one method to inform the next method in a sequential process
5. **Expansion:** allowing results of multiple methods to expand the scope and understanding of the research problem

It is clear that using a mixed methods approach is beneficial due to the complex nature of Phase 1 training. However, as with using any methodology, the mixed method approach contains inherent disadvantages. An example of this is that a multifaceted, mixed method study depends on a generous amount of planning, effort and time from the researcher (Creswell & Plano Clark, 2007). Also, a mixed methods approach requires a multitude of data collection from a variety of sources (Bryman, 2008). Due to this reason, a multitude of data sources were used across the two studies including instructors, recruits and staff in the training design cell at ATC Pirbright. In addition to this, the researcher must be competent in a greater range of research methods, which could possible compromise the reliability of the research (Bryman, 2008; Creswell & Plano Clark, 2007). Steps have

been taken throughout this thesis to address this by piloting and cross-validating the research methods, along with analysing the validity and reliability of results from the studies.

As suggested by Ivankova, Creswell, and Stick (2006), using a mixed methodology is appropriate when the quantitative and qualitative methods are not sufficient individually to capture the required detail of experiences. Creswell and Plano Clark (2011, pp. 9-11) further expand on circumstances in which using a mixed methods approach are appropriate when the need exists:

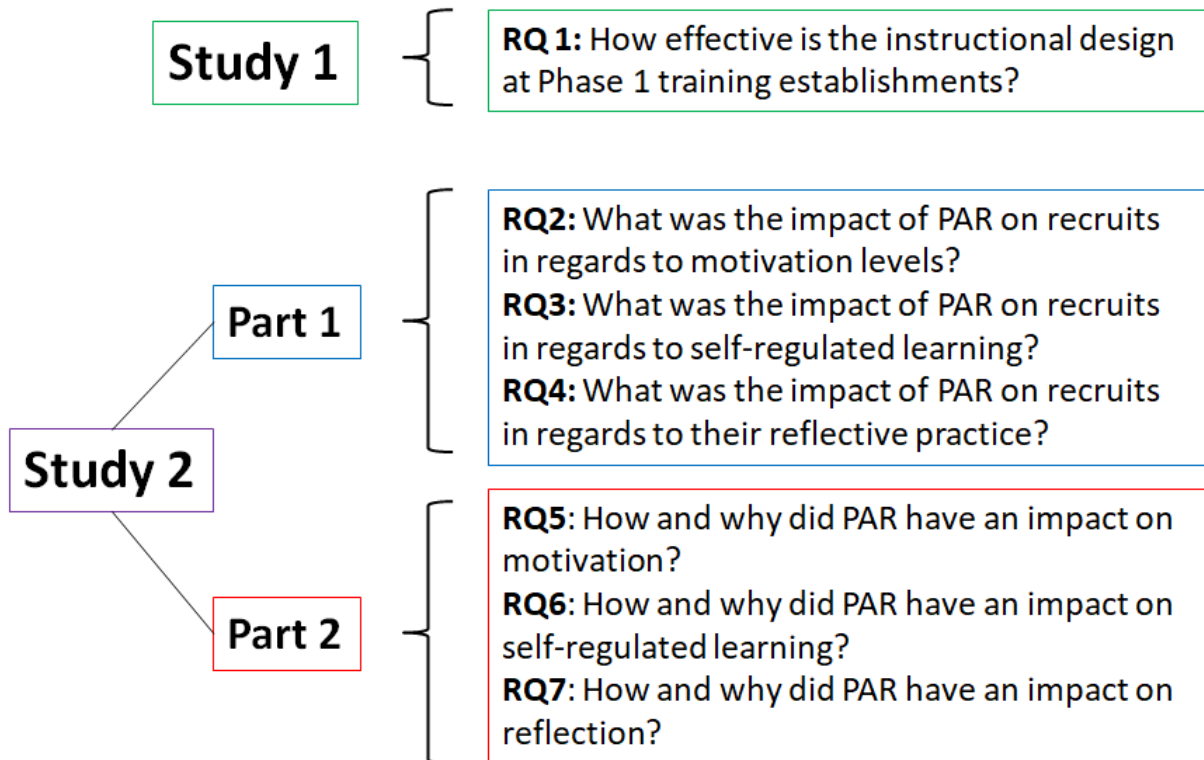
1. because one data source may be insufficient;
2. to explain initial results;
3. to generalize exploratory findings;
4. to enhance a study with a second method;
5. to employ a theoretical stance; and,
6. to understand a research objective through multiple research phases.

When applied to this thesis, points 1, 2, 4 and 6 were particularly relevant. In regards to point 1, it was vital to be aware of the holistic view of training-effects on recruits in regard to their self-perceived reflections of training experiences in order to obtain a balanced understanding of the literature addressed in Chapter 2. The findings of Study 1 highlighted frictions between the standardised approach to training and the delivery restrictions put upon the instructors, requiring further examination to comprehend how and why these frictions occurred (points 2 and 4). Finally, this thesis focussed on unpacking the effectiveness of the PAR model on recruits to ascertain the degree to which it aids in developing 'thinking soldiers'. Consequently, it was required that the research objectives were examined through multiple phases (point 6) through initially developing both empirical and conceptual layers of the issue prior to assessing them through qualitative methods. Section 3.3 outlines the research design adopted in this thesis in order to address these goals.

3.3 Research Design

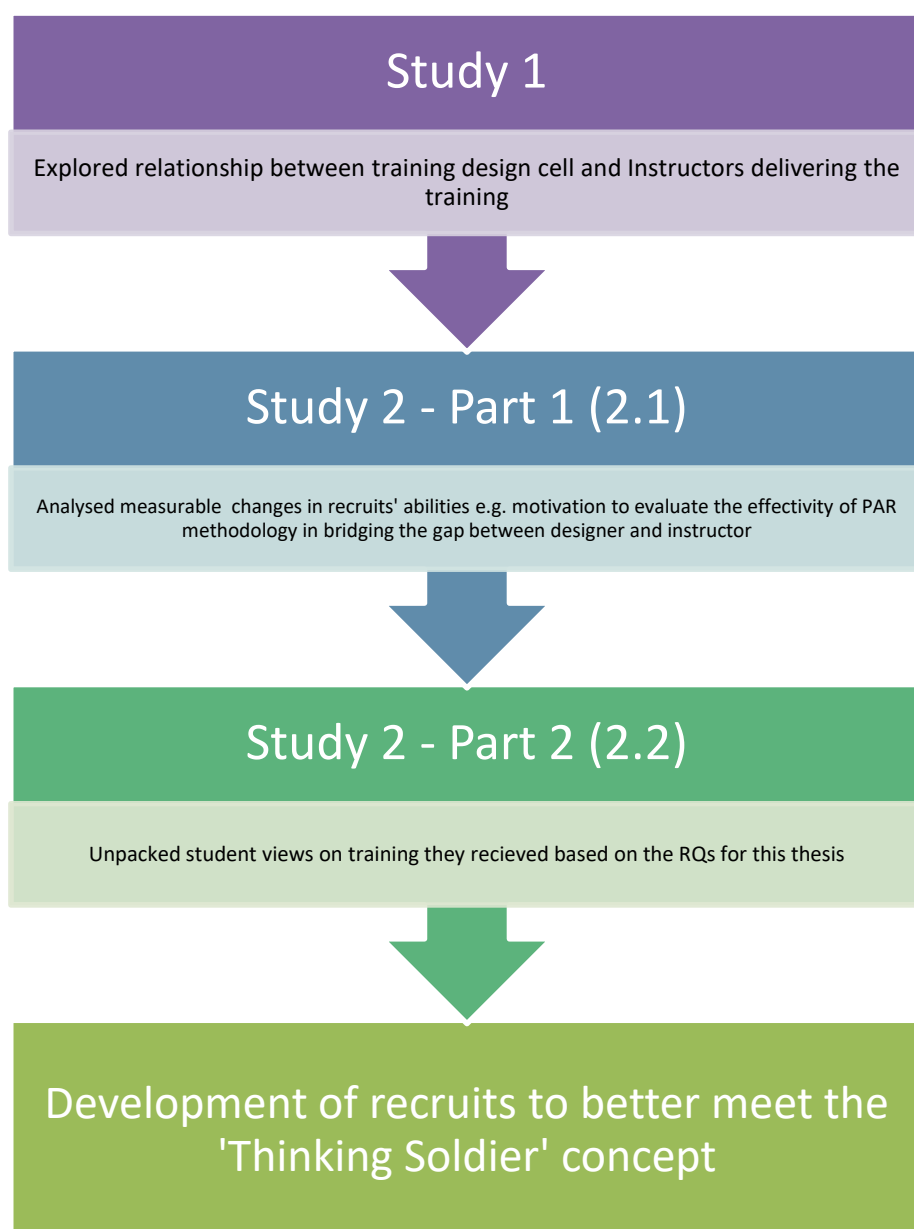
As outlined within Chapter 2, seven research questions were proposed in this thesis, using two linked studies to address them. Figure 3.1 highlights the methods used in address each research question.

Figure 3.1 Research questions addressed in each study



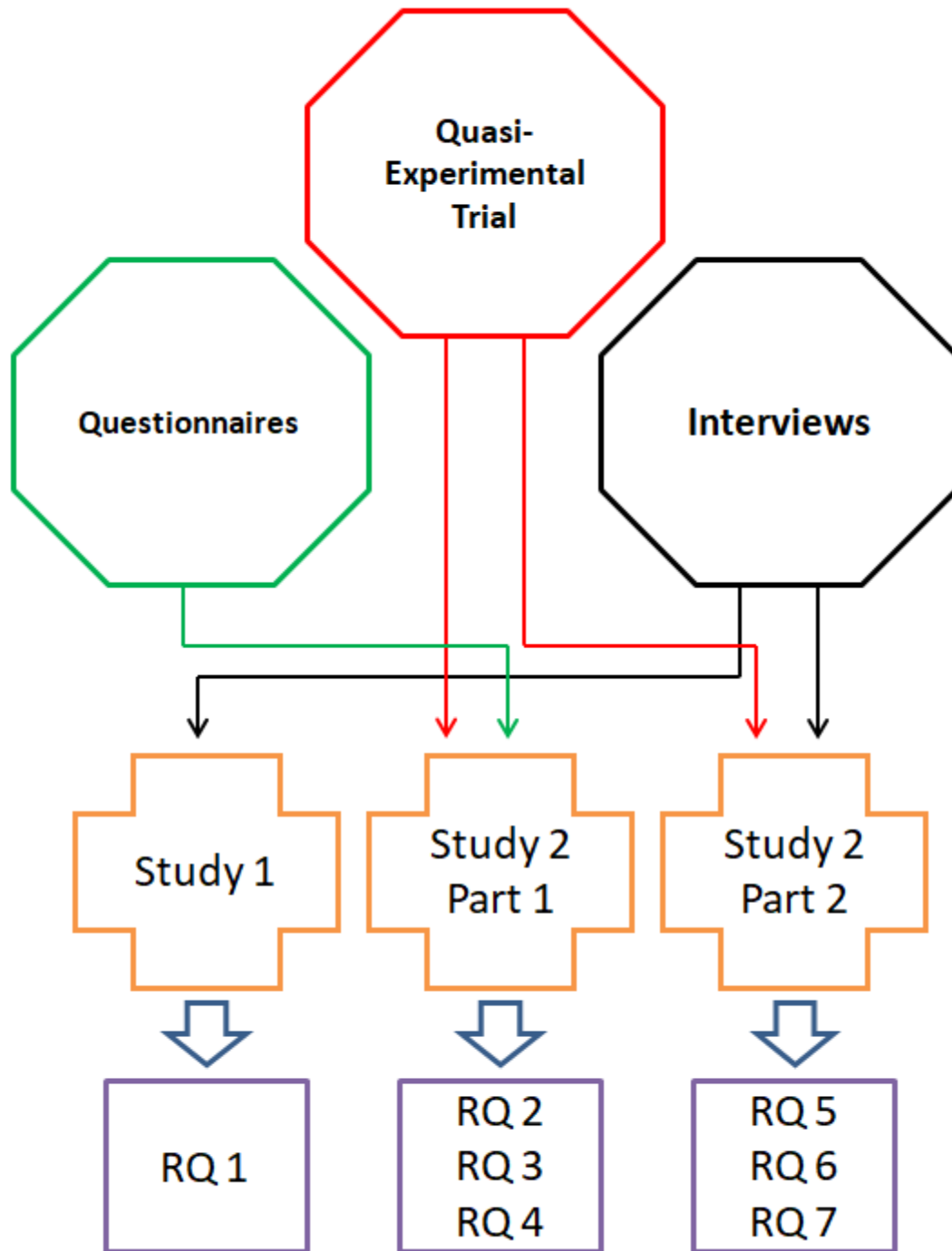
Study 1 provided an initial understanding of the emergent issues within the context of Phase 1 training. Study 2 Part 1 explored the perception of those issues through the self-reviewed appraisals conducted by the recruits who received the training. Study 2 Part 2 then highlighted subjective experiences using semi-structured interviews. This reviewed recruit reflections on their experiences from participation in the Phase 1 training programme. Overall, the findings (outlined during Chapters 4 to 6) provided a holistic interpretation of the effectiveness of the Phase 1 training programme in developing a thinking soldier. As such, Study 1 and 2 yielded important data that sought to bridge the gaps in current literature. These were addressed in Sections 2.3.4 and 2.4.4. The conceptual framework that linked the two studies is demonstrated in Figure 3.2.

Figure 3.2 Conceptual links between studies



Using a mixed method approach was appropriate in order to gain an understanding of the multifaceted problem (described in Section 3.2.2). By adopting a pragmatic approach, the research methods were selected due to their ability to effectively address the requirements of the specific research questions. The methodologies used for research within this thesis incorporated questionnaires, qualitative interviews and quasi-experimental trials. Figure 3.3 provides an outline of the relationship between the methodologies and components of the studies used to address the research questions of this thesis.

Figure 3.3 Visualisation of mixed methods used in this thesis



Sections 3.3.1 to 3.3.3 discuss and justify the use of the research methods in relation as they relate to the individual research questions.

3.3.1 Questionnaires

In Study 2.1, a reflective questionnaire was incorporated at the beginning and end of the recruits training programmes to understand in greater detail the impact that instructional methodologies could have on motivation, self-reflection and self-regulated learning (RQ5-7).

Cohen et al (2011) describes questionnaires as ‘self-report tools’ that are used to collect participants’ data, in particular their experiences regarding certain themes or topics. Using this data collection method is advantageous when attempting to assess the thoughts, perceptions or attitudes of participants in regard to specific experiences that they have had (Best & Kahn, 2006). Further to this, the type of question used can be adapted to suit the type of data being collected, for example multiple-choice questions, Likert scales and yes/no questions can provide data for quantitative, statistical analysis (Wolf, Joye, Smith, & Fu, 2016). Equally, open-ended questions can provide more detailed written responses in order to capture qualitative data. As such, the type of questionnaire can be adapted in order to address the parameters of the research questions. Table 3.5 summarises the advantages and disadvantages of using questionnaires for research.

Table 3.5 Advantages and disadvantages of questionnaires

Advantages	Disadvantages
Allows for in-depth analysis of participant reflections or experiences	Truthful reflections of experiences may be biased by time or participant forgetfulness
Allows for a timely and cost-effective analysis of a larger population of participants than would be possible using alternative methods, such as qualitative interviews	Participants may interpret questionnaire questions or scales in ways different than intended by the researcher
Eliminates the possibility of interviewer bias on participant responses	When compiling questions, the researcher is making decisions or assumptions about what is of importance to the experience, which may miss latent or emerging themes or concepts

Based on: (Mittelmeier, 2017; Best & Kahn, 2006; Bryman, 2008; Gay et al., 2016; Groves et al., 2009; Wolf et al., 2016)

A particular benefit that was key to research conducted in this thesis was the cost-efficient and timely nature of questionnaires (Groves et al., 2009; Wolf et al., 2016). In Study 2 Part 1, it was vital that the experiences of the participants were evaluated before the recruits left the Phase 1 environment as tracking each individual would be impractical and would yield a much smaller return. Over time, the participants would potentially have a diminished and bias recall of their training experiences (Wolf et al., 2016). Consequently, the data collection was required to occur prior to recruits leaving Phase 1, but more notably before their final assessments. Along with this, the interviews had to be taken into consideration as the qualitative data also had to be collected and analysed by the end of the recruits’ 14-week training programme.

Additionally, whilst interviews can be time consuming to conduct, and therefore limit the sample size of the research (Kvale, 2008), questionnaires facilitate a method of rapid data collection of a far greater sample size. In order to gather the same degree of data from interviews would mean needing to conduct an unrealistic amount within a relatively short space of time. Obtaining data through a large quantity of samples can provide a more accurate generalisation of findings in conjunction with having a degree of control for mediating variables.

Conversely, using this method for data collection can lead to a degree of inflexibility (Bryman, 2008) as it does not provide a platform for elaborating on responses or clarification, leading to participants potentially misinterpreting the questions and skewering eventual findings. It is therefore vital that questionnaires undergo a robust and rigorous selection process that incorporates, where feasible, previously validated constructs (Wolf et al., 2016).

3.3.2 Qualitative Interviews

Study 2.1 provided an initial understanding of differences that could be ascertained between various stakeholders including the training design cell and the recruits. However, a prominent weakness of quantitative data is that it is not clear which aspects have had greater influence on the data that has been collected, for example how and why participants reacted a certain way.

An outcome of Study 2.2 was to further explore the quantitative results that related to different experiences of recruits' measurable self-reflections. Equally, another outcome was to provide a more robust, evidence-based understanding of which recommendations could be made via the semi-structured interviews.

Kvale (2008) suggests that using interviews for qualitative data collection provides a focus when attempting to analyse and understand a participant's experiences in life. The interviews themselves can hold various structures (Cohen et al., 2011); however, Mason (2002) suggests that there are various underpinning aspects that are common amongst all interview styles, namely:

1. An exchange of dialogue between the interviewer and the interviewee(s)
2. A thematic or topic-centred approach (i.e. something the interviewer wishes to discuss)
3. A co-creation of knowledge and understanding between interviewer and interviewee(s) as a result of the interaction

Kvale (2008, p. 5) states that 'an interview is literally an *inter-view*, an interchange of views between two persons conversing about a theme of common interest.' Within this definition, interviews are preferable when the aim of the research is to advance the understanding or gain a greater insight into a phenomenon (Ritchie & Lewis, 2003). Similarly to questionnaires, using interviews for data collection has various strengths and weaknesses, which are outlined in Table 3.6.

Table 3.6 Advantages and disadvantages of qualitative interviews

Advantages	Disadvantages
Provides a rich and detailed understanding of <i>how</i> and <i>why</i> phenomena occur	Responses are based on opinion, and therefore are highly subjective and easily biased
Allows for an analysis of the subtleties between individual experiences, particularly in regards to complex research topics	Collected data depicts participant reflections of their experiences, which may not correspond with actual, observable or measurable experiences
Allows new themes or ideas to emerge, which may not be apparent in current literature or collected quantitative data	Timely and expensive to conduct, therefore often resulting in a smaller sample size (making it more difficult to generalise findings across a large population)

Based on: (Mittelmeier, 2017; Gilbert, 2001; Gilman, 2000; Kvale, 2008; Ritchie & Lewis, 2003)

The prominent advantage of including interviews into this thesis was that they facilitated for a greater consideration of a participant's experiences. This was crucial, as a disadvantage of the quantitative methods used for data collection within this thesis, for example the recruit questionnaires, is that they may not be able to provide clarity regarding how or why something has occurred. In this sense, whilst interviews can be conducted at any point during a research program, if

quantitative data collection precedes the interviews they can then aid in providing a greater understanding of the quantitative results (Bryman, 2008; Creswell & Plano Clark, 2011). As the experiences gained during Phase 1 training are incredibly personal and subjective, the qualitative interviews that were used for research in this thesis were able to provide greater insight into the nuances of recruit experiences. Equally, the examination of reflective accounts facilitated in triangulating and confirming the findings from Study 1 and Study 2.1.

Using a mixed method approach also aided in focussing the broad scope of the research methods and analysis in Study 1, for example the inductive approach taken to seek emergent issues, by allowing individual voices to be heard. Concurrently, the questionnaire data collected in Study 2.1 counterbalanced the weaker aspects of the interviews (as outlined in Table 3.2) by rendering an objective viewpoint of changeable aspects to compliment Study 2.2's intangible, individualistic data. A prominent disadvantage of using interviews for research sits within the subjective interpretation during the analysis phase (Kvale, 2008). Due to the subjective stance of the research, biased results can easily be drawn. Due to this risk of bias, actions were put in place in order to mitigate a degree of the analysis subjectivity, for example, independent coders were incorporated to increase analysis reliability.

Semi-structured interview schedules

According to Ritchie and Lewis (2003), interviews, as a form of primary data collection, can be used to gather information on past or present experiences, as well as collect information from individuals about their own opinions, beliefs or practices, which is relevant to the questions set out in this research study regarding the recruits' perspectives. However along with this, interviews can be used to gather factual material and data from subject matter experts, i.e. the training officers and stakeholders involved with the design of Phase 1 as it is their primary role.

More specifically, the interviews took a semi-structured format as this format has been identified as the most relevant data collection method for this specific research for various reasons. Firstly, semi-structured interviews give the participant more opportunity to respond in their own words and in their own way. This can help to provide more in-depth data than more structured forms of data collection as it places the emphasis on the participant rather than the researcher. In turn, that can facilitate other issues to emerge from the research aside from the ones identified before the interview (Hutchinson & Skodol Wilson, 1992).

Semi-structured interviews are essentially a guide that will help to answer pre-existing questions drawn out from the literature review (Chapter 2), or to allow other issues to emerge. This gives the researcher a certain amount of discretion about the question order, but also the flexibility to explore emergent issues as they arise. This can be facilitated as the interview is more conversational in style than other formats which can help to build rapport and trust between the interviewer and participants, increasing the validity of their responses (Patton, 1990). Validity and reliability also depend upon conveying an equivalence of meaning (Denzin, 1989). It is this equivalence which helps to standardise the participants' responses and facilitate comparability. To achieve this, the research questions will be standardised, however if new issues emerge then the researcher will probe for more information as the semi-structured format helps to facilitate this (Hutchinson & Skodol-Wilson, 1992).

Probing was used to increase the reliability of the data collected. It allows the interviewer to clarify any response or issue raised by the participants (Hutchinson & Skodal-Wilson, 1992) as well as opportunity to explore other relevant aspects that are raised (Treece & Treece, 1986). However, there is a danger that respondents answer in what they believe is the 'preferred social response whether it is true or not' (Brink, 1989). This is particularly relevant to the rank structure within the army as recruits may feel that they will say what they think the officer wants to hear e.g. that there is nothing wrong with any aspect of the training. To help negate this, the interviewer can take steps to build up rapport, for example, Denzin (1989) suggests that the dress, etiquette and manner of the interviewer can largely overcome any potential bias and can help to put the respondent at ease. This is reinforced by Patton (1990) who similarly states that the quality of the information obtained during an interview is largely dependent on the interviewer.

To provide some context regarding the author, I already have a degree of experience with research methodologies, particularly in interviewing. Whilst completing research for my Masters in Education (MEd), I conducted semi-structured interviews with secondary school students regarding their experiences in physical education. In hindsight, the topics covered between the MEd research and this thesis are actually very similar as they both trial and compare two different sets of teaching methodologies. Whilst this provided me with the knowledge and confidence to pursue the EdD, I am also conscious that I hold some inherent biases. As an education officer in the British Army, I would naturally want to yield positive results that suggest a constructivist approach is unquestionably more effective to employ. This is why the methodology needs to be robust enough that it could be challenged on its validity and integrity so that I could only be objective when reporting the results.

Focus Groups

Study 1 in this thesis gathered data by conducting semi-structured interviews via a focus group as they share many common features. A focus group is a group discussion on a particular topic organised for research purposes that are used to generate information on collective views, and the meanings that are hidden behind those views (Morgan, 1998). They are also useful in generating a rich understanding of participants' experiences and beliefs. Bloor et al (2001) suggested the following criteria for using focus groups:

- As a standalone method, for research relating to group norms, meanings and processes
- In a multi-method design, to explore a topic or collect group language or narratives to be used in later stages
- To clarify, extend, qualify or challenge data collected through other methods
- To feedback results to research participants.

The advantages and disadvantages of using focus groups are outlined in Table 3.7.

Table 3.7 Advantages and disadvantages of using focus groups for research

Advantages	Disadvantages
Able to obtain detailed information about personal and group feelings, perceptions and opinions	Disagreements and irrelevant discussion can distract from the main focus
Provide a broader range of information	Hard to control and manage
Saves time compared to individual interviews	Some participants may find a focus group situation intimidating or off-putting; participants may feel under pressure to agree with the dominant view

Based on Campbell, D. T., & Stanley, J. C. (2015).

The composition of a focus group is of particular importance as the data will be always be impacted by a group mix when taking into account aspects such as professions of the participants, gender and ages (Kitzinger, 1994). Along with this, for a focus group to be successful, interaction is crucial. For example, a group that has already been interacting may work best for research purposes, whilst other times may benefit from using stranger groups (Morgan, 1998). Individuals in a group that have already been interacting with one another can be easier to employ as they have pre-existing level of comfort and shared experiences between them. This familiarity can help to facilitate discussions whereby the individuals in the group are able to challenge each other (Kitzinger, 1994), which would likely be the situation when conducting a focus group of recruits.

It is also important to consider the size of the focus group. The optimum size for a focus group is six to eight participants (excluding researchers) but focus groups can work successfully with as few as three and as many as 14 participants (Bloor et al, 2001). Larger groups can be loud, hard to manage and chaotic, which can create difficulties for the moderator and cause frustration for the participants who wish to speak, whilst smaller groups could be limited in their discussions (Bloor et al, 2001).

3.3.3 Quasi-Experimental Design

Experimental designs can be beneficial when attempting to address evaluating questions regarding the impact and effectiveness of programs. They can increase confidence that measured outcomes are the result of a given program as opposed to a function of extraneous variables or events by emphasising the use of comparative data as context for interpretation of findings (Cook & Campbell, 1979). Quasi-experimental designs are frequently used when evaluating educational programs when it is not possible to use random assignment. Whilst quasi-experimental designs should be used frequently, they can be marred by interpretation issues. Shadish et al (2002) describe two broad types of experiments:

- (a) randomized experiments, in which study units are randomly assigned to observational conditions; and
- (b) quasi-experiments, in which study units are not randomly assigned to observational conditions because of ethical or practical constraints.

Although it is difficult to draw causal inferences from quasi-experiments than from randomised experiments, careful planning of quasi-experiments can lead to designs that allow for strong causal

inferences (MacLeHose et al, 2000). In order to infer a relationship between cause and effect, three requirements must be met:

- 1) Cause must precede effect;
- 2) Cause must be related to effect; and,
- 3) No alternative explanation for the effect must be plausible.

Randomised and quasi-experiments do not differ with respect to the first two requirements. However, with respect to the third requirement, randomised experiments have an advantage over quasi-experiments. Because studies are randomly assigned to conditions in randomised experiments, alternative explanations are equally likely across these conditions and can be ruled out. But because quasi-experiments lack random assignment between conditions, alternative explanations are difficult to rule out. The strengths and weaknesses of using a quasi-experimental design method are outlined in Table 3.8.

Table 3.8 Advantages and disadvantages of quasi-experimental design

Advantages	Disadvantages
Usually more feasible because it often does not have the time and logistical constraints associated with many true experimental designs.	The lack of random assignment into test groups leads to non-equivalent test groups which can limit the generalisability of the results to a larger population.
Reactions of test subjects are more likely to be genuine because it not an artificial research environment. For this reason, external validity is increased quasi-experimental research.	Conclusions about causality are less definitive in quasi-experimental designs.
Matching procedures may be used to help create a reasonable control group, making generalization more feasible.	Pre-existing factors and other influences are not taken into account because variables are less controlled in quasi-experimental research. If other variables are not controlled, the researcher can be assured that the treatment was the sole factor causing the outcome.

Based on Campbell, D. T., & Stanley, J. C. (2015).

Threats to internal validity are prominent in quasi-experiments. Researchers must ensure that the threats to validity are minimised. Shadish et al (2002) discuss principles to negate this such as the identification and study of plausible threats to internal validity, the design controls that limit threats to internal validity (e.g. control groups, pre-test/post-test designs) and specific hypotheses that limit the number of viable alternative. Of these, the Non-Equivalent Group Design (NEGD) is probably the most frequently used design in research (Trochim, 2001). It structures as a pre-test / post-test randomised experiment but lacks the random assignment of other designs.

The Non-equivalent Groups Design

When using the NEGD design, the researcher empirically assesses the differences in two groups. If the researcher finds that one group performs better than the other on the post-test, they can rule out initial differences and normal development as explanations for the differences (Grimshaw et al,

2000). This does, however, assume that the groups were in fact similar on the pre-test. Other issues may also result from participants in the comparison group (non-PAR groups), for example being incidentally exposed to the treatment condition (i.e. an instructor who has the PAR qualification replacing one who did not mid-way through a training programme) or having more motivated recruits than in the PAR platoons etc. Additional problems may result from discovering that the two groups do differ on the pre-test measure. If groups differ at the onset of the study, any differences that occur in test scores at the conclusion are difficult to interpret.

3.3.4 Summary

This section provided an overview of the methodological frameworks that were incorporated in this thesis as well as identifying and examining the inherent issues in the chosen methods.

Section 3.2 outlined the complexities of addressing the research questions that were set for this thesis and that they required a multifaceted approach in order to comprehend the issues they contained. As such, a mixed method and pragmatic approach allowed a degree of flexibility to be used so that the research questions could be addressed. Sections 3.3.1 to 3.3.3 outlined the overarching methodological choices incorporated in this research. Chapters 4 and 5 describe the specific parameters used for the specific studies. The following section outlines the ethical considerations that informed those procedures.

3.4 Ethics

All studies in this thesis were approved by the The Open University Human Research Ethics Committee. The following ethical guidelines were consulted during this research project: British Educational Research Association (BERA, 2011). The EdD falls within the area of education, and therefore the ethical guidelines of the BERA Charter (2011) were considered with respect for:

- the person
- knowledge
- democratic values
- the quality of educational research
- academic freedom.

As such, participants' personal information were collected within all of the studies in this thesis, including age, names and gender. However, as defined by the Data Protection Act 1998, no sensitive information was collected about participants, for example sexual orientation, disability, religion, and ethnicity. In Study 1 and 2, anonymised personal information was shared with the Open University supervision team in order to conduct independent analysis in regards to the reliability of the studies. In these instances, recruit ID numbers, which were technically anonymous data for my supervisors, were employed in order to equate collected data. All information was stored in secure, password-protected files in accordance with Data Protection Act 1998 requirements.

More specifically, the study observed several ethical protocols, for example, the purpose of the study was clearly explained to all participants who were assured that no personal data would be unnecessarily retained or published in a way that can identify individuals. A written letter of permission was sent to ask for initial permission from the recruits' respective chain of command. Each recruit was briefed on the background of the project, what they are being asked to complete and how the data would be stored and used. They were all given the option to participate and those

that did signed a waiver as evidence that they were content with being involved in the process. Participants had the right to withdraw from the study anytime without repercussion. The results of the research would not affect the recruits' training report / career. The consent form, including the research brief used during the process, can be found at Appendix 1.

Throughout the research, actions were taken to ensure the protection of the participants' identification. Anonymising numbers were used in reporting where required e.g. Recruit 1 etc. In all studies, no risks to participants were identified. This process also extended to the instructors of each platoon used in order to create anonymisation for them. Throughout the research, the work was conveyed to recruits as wanting to gain a personalised understanding the training environment via their experiences. Further ethical considerations for each study are provided in the methods sections of the corresponding chapter within this thesis (Chapters 4 to 5).

In addition, permission was obtained by the Commanding Officer of ATC Pirbright to conduct the questionnaires and interviews, particularly with respect to the interviewing participants, including those are under 18 years old. The permission letter can be seen at appendix 2.

3.5 Conclusions

This chapter presented an overview of the underpinning philosophical considerations and methodologies utilised in this thesis. The following two chapters (Chapters 4 and 5) outline the specific methods used within each element of the studies, along with highlighting the findings and results. Chapter 6 then concludes this thesis by discussing the findings in conjunction with the literature gaps as outlined in Chapter 2.

Chapter 4 – Main Study (Study 2) Quantitative Methods and Results

This chapter outlines the first part of the main study in this thesis that was conducted based on the findings from Study 1. It includes a robust, quasi-experimental study that analysed the findings of a quantitative-based survey, comparatively exploring the impact of PAR or non-PAR instruction. As such, the chapter is divided into four sections. Initially, the introduction (Section 4.1) outlines the research questions that are relevant to this study. The Methods section (Section 4.2) then describes the methods that were used in conjunction with this part of the Main Study, for example details regarding the participants and setting such as the approach used for data analysis. The Results section (Section 4.3), sets out the results as they relate to the research questions of the thesis. Finally, the Discussion section (Section 4.4) highlights the implications and limitations of the results in conjunction to other chapters in this thesis, whilst also examining the influence it has on the second part of Study 2.

4.1 Introduction

This chapter provides a comparison of the instructional methodology that recruits received during their Phase 1 training programme, i.e. PAR vs non-PAR methods. In Study 1 (Appendix 2), an examination of the instructional design at Phase 1 training establishments showed that there was a distinct friction between the training design cell and the instructors delivering the training. The training design cell set a requirement of a standardised approach to training as they needed to take into account not only multiple training iterations per year, but also the three different establishments of ATC Pirbright, ATR Winchester and ITC Catterick.

However, the instructors wanted to add their own experiences to their lessons in order to ‘bring them to life’, which would start to compromise the standardisation. Both the instructors and the training design cell wanted to develop the ‘Agile Warrior’ concept to create soldiers with more cognitive flexibility. It was at this stage that the DTTTv2 course was released. This course included the PAR methodology which would look to address the concerns of all parties: a standardised approach, flexibility for instructors, and a more student-centric style of instructing to develop cognitive flexibility. This chapter examines the impact that PAR may have in regards to developing recruits as ‘Agile Warriors’ (Liddy, 2010).

Whilst PAR has been explored in the literature review (Chapter 2), research within this context has not been conducted previously, i.e. within a military framework using recruits. As such, it was important that the initial view of the research was seen through an objective lens. This led to selecting a positivist paradigm to be used as the conceptual framework. The positivist paradigm is based on the philosophical ideas of the French philosopher August Comte and provides an objective reality that can be used as a comparison against research assumptions (Cohen et al, 2011). Specific to this research is the assumption that PAR will have a positive effect on recruits in terms of enhancing motivation, self-regulated learning, and reflective practice; however this needs to be objectively tested through quantitative methods to establish an initial premise.

This study forms the first of two parts; part 1, this chapter, will concentrate on the quantitative methods utilised to extrapolate conclusions based on the impact of PAR on recruit learning. The results of this chapter will then be further examined by triangulating the qualitative data drawn from

the follow-up interviews (Chapter 5). In order to examine the impact of PAR there was a requirement to identify tangible aspects that could be used as comparative constructs against a non-PAR control group. This was necessary as the recruits essentially would not know if their instructors were delivering lessons based on PAR or a non-PAR methodology. Based on the literature reviewed in Chapter 2, three main areas were identified as targetable constructs to measure PAR that will be used as a basis for the following research questions:

RQ2: What was the impact of PAR on recruits in regard to motivation levels?

RQ3: What was the impact of PAR on recruits in regard to self-regulated learning?

RQ4: What was the impact of PAR on recruits in regard to their reflective practice?

The following section describes the methods employed in order to address the research questions.

4.2 Methods

4.2.1 Questionnaire calibration

With the research questions set, an appropriate combination of instruments could then be considered to be used for data collection. As was the case for Study 1, this study required piloting the potential instruments for data collection purposes. This is to ensure that the instruments used are as valid and reliable as possible whilst also providing an appropriate context that the participants can both relate to and understand.

In order to render accurate data to analyse and draw conclusions from, the methodology for collecting the data must not only reflect the type of research that is being conducted but also be realistic in terms of practical application. The aim of this research is in essence to examine the effectiveness of the PAR model. Naturally, those who are receiving the 'PAR training' should be targeted. As the PAR model has only recently been established within the updated DTTTv2 instructor training course, there was a limited pool of instructors who had completed the course, with those posting to Phase 1 training establishments being prioritised. With the highest and most frequent intake figures of approximately 30 new recruits every 2 weeks, ATC Pirbright was selected as the Phase 1 establishment for targeting both a high number of recruits receiving training and also the highest percentage of DTTTv2 trained instructors.

The benefit of using a Phase 1 training establishment, apart from the potential high-yield of data and relevance of the subjects as mentioned, is that the training programmes are set. This allows an element of predictability and therefore forward planning when attempting to balance my own work commitments with conducting the EdD research. Access to the training programme was made available by permission from the Chief Instructor of the education wing, which is where it was agreed that the platoons would be intercepted for the data collection.

The training programmes provided highlighted the time and day that each platoon would be in the education wing over the entirety of their course but also, more importantly, what week of training the platoons would be in on those days. This meant that platoons could be targeted during Week 1 and Week 12 of their training, aligning with the 'pre' and 'post' concept to increase validity and avoid merely a 'photo finish' of results.

However, in order to ensure validity and appropriateness, the instruments went through a number of phases. In doing so the instruments were filtered at each phase, helping to improve the effectiveness during the main study. The four phases included: initial instrument selection, 'talk aloud' critiques, recruit critiques and final instrument selection based on the feedback.

Phase 1 - Instrument Selection

This initial stage was to identify an appropriate type of instrument to choose for data collection. One of the main considerations in the context of conducting research within a doctorate programme is the amount of data required. For other projects such as Study 1, 3-4 interviews were sufficient to indicate emergent issues. However, in order to increase the reliability of the study, a more significant number of participants was required.

Due to the potential sample size of the target population for the Main Study being relatively large, it was necessary to use a quantitative approach to the questionnaire in order to gain enough data from recruits to analysis effectively. A prominent advantage of using questionnaires to collect quantitative data is the ability to collate a vast amount of responses in order to make assumptions about a population (Wolf et al, 2016). Practically, collecting data from a large sample of participants takes time, which is part of the decision in using a questionnaire as the main instrument. This was the most practical way of collecting information under realistic circumstances. Also, using a questionnaire would facilitate yielding quantitative data that could be used to compare the recruits' progress in the form of a 'pre' and 'post' training survey. The advantages and disadvantages of using a questionnaire as a data collection tool were highlighted in detail in Chapter 3 of this thesis.

With the format of using a questionnaire decided, the next step was to consider what specific areas the question set should focus on. This was based on the findings from the literature review (Chapter 2) drawn from three main areas: motivation, self-regulated learning and reflective practice. A number of options were researched and considered, however the choice was narrowed down to two options per area which were then divided into two pilot questionnaire sheets: Pilot 1 and Pilot 2.

Both questionnaires aimed to assess the same areas (motivation, SRL and reflection) and as such appeared similar. However, there were subtle differences between the two that warranted trialling both sets in order to gauge which had the better response from participants, for example, which question sets were easier to understand. If the participants understood the questions more accurately then it can be assumed that they would answer them in a more honest and accurate manner. For example, the motivated strategies for learning questionnaire (MSLQ) (Pintrich et al, 1991) was used for Part 1 of each pilot; however, the original was used for Pilot 2 and an adapted version used for Part 1. It was important to use the MSLQ due to its prolific use and academic robustness, but also to gauge how much the questions could be adapted to the specific context without altering meaning. In regard to Part 2, Pilot 1 used an academically-tested questionnaire, in comparison to Pilot 2 which trialled a questionnaire that was not as academically rigorous. However, it was important to determine which one the participants would respond to more effectively as, even though it was not as academically robust, the participants could respond more positively to the questionnaire in Pilot 2.

The format of both pilot sets was similar in lay out; an overview for participants explaining the study, a consent form to be signed, part 1: self-regulated learning and motivation; part 2: self-reflection

and part 3: personal details. The personal details section would be used to track individuals for additional information such as educational background and any prior experience.

Likert Scale

Rensis Likert (1931) invented the scale in order to assess the attitudes of participants and it has been described as a set of items, composed of approximately an equal number of favourable and unfavourable statements that concern the attitude object, which is then given to a group of subjects (Carmines and McIver, 1981). Generally, participants rate their subjective opinion on a topic against one of the typically five responses, depending on how much or little they agree with the statement. The responses usually comprise of strongly agree, agree, undecided, disagree, or strongly disagree; however, the scale can be adapted to use more numbers, e.g. 7-point scales. As described in the following sections, the Likert scale was used in both pilot questionnaires to gauge participant agreement with the relevant item description i.e. the question or statement.

Pilot 1, Part 1

The questionnaire selected was an adapted version of the MSLQ (Pintrich et al, 1991). It had previously used in multiple papers (Feiz, Hooman, and Kooshki, 2013; Chen, and Whitesel, 2012; Cook, Thompson, and Thomas, 2011) including by Hood, Littlejohn and Milligan (2015) who used it to examine how a learner's role and context within a massive open online course (MOOC) influences their ability to self-regulate their learning. The questionnaire consisted of eleven constructs with 3-5 items per construct, and a Likert response scale of 1 – 5.

The questionnaire was selected as it is an academically proven instrument that focuses on the chosen research area. Along with that, it also breaks the focus area of self-regulated learning and motivation into sub categories such as motivation, goal-setting and self-efficacy. This would help to facilitate examining any issues arising during analysis of the data in more detail, potentially identifying specific problems such as the recruits being unable to set realistic goals etc.

Pilot 1, Part 2

Part 2 of the question sets focuses on self-reflection. The questionnaire selected was adapted from Kember et al (2000) and consists of 16 questions based on an adapted Likert 1-5 (or in this instance A to B) scale. Similar to the question set in part one, it had also been empirically tested in a range of settings (Lethbridge et al., 2013; Catterall et al., 2002; Maclellan, 2004), and breaks the context down further into four constructs: habitual action, understanding, reflection and critical reflection, using four items per construct.

Pilot 2, Part 1

Similarly with Pilot 1, the alternative question set is also based on the MSLQ (Pintrich et al, 1991) having been employed multiple times (Stoffa, Kush, and Heo, 2011; Cho & Summers, 2012; Credé & Phillips, 2011; Dunn, Lo, Mulvenon, & Sutcliffe, 2012). However, as opposed to adapting the question set as seen by Hood et al (2015) the original question set was used, however only questions that were relevant to the focus of the research were selected, narrowing the number down from 81 to 22. The 22 questions consisted of seven constructs with 4-6 items per construct and used a 7-point Likert scale, as opposed to 5-point seen in Pilot 1.

The selected areas were those deemed most relevant to the study and ones that the PAR model would have the most significant impact on for the recruits. Those sub topics included: individual goal orientation, self-efficacy for learning performance, extrinsic goal orientation, metacognitive self-regulation, control of learner beliefs and critical thinking. The questions would be adapted to better suit the context of the recruits after receiving feedback from the next phases.

Pilot 2, Part 2

The research conducted into reflective questionnaires found that the majority are very similar, both in question set and layout. So that a clear conclusion could be drawn in deciding between the two reflective questionnaires, a self-reflective assessment was used adapted from www.businessballs.com/reflective-practice (accessed 24/04/16). The main difference between this questionnaire and many others is that the sheet provides a score and guide on your 'level' of reflection. This in turn could not only provide instant feedback to the students but also yields an immediate qualitative score that could be used for comparison. Also, the layout allows the participant to focus on a box of 5 questions rather than a daunting list.

Phase 2 – Talk Aloud Critiques

With the two sets of questionnaires chosen, the next phase of testing was an initial critical evaluation through 'talk-alouds'. This process involved asking volunteer participants to verbally communicate their responses to each question and to give any critical feedback where they found any to be confusing or not relevant. The benefits of conducting talk-alouds include the researcher having extra types of communication from the participant to enable judging the amount of understanding. For example, a list of non-verbal cues such as silence, misreading, smiles and pauses can be noted by the researcher as these could potentially indicate memory overload (Cullum, 1998). Further to this, Fontana and Frey (2000) suggest that researchers focus on participants' nonverbal communication, including "pace of speech...body movement...and variations in vocal tone and volume" (p. 660-661), and not simply the language selection used.

Volunteers from the Defence Centre for Languages & Culture (DCLC) were asked to participate in the pilot after responding to an email request. The purpose of the study was explained to the volunteers who also signed the consent form. They were interviewed individually and the sessions were recorded on an audio device. Each volunteer was given both questionnaires to complete and discuss. For anonymity, each participant was referred to as 'Volunteer 1' etc. The backgrounds of the volunteers were as follows:

Volunteer 1. A male education officer studying on a language course, Volunteer 1 had previous experience of teaching junior soldiers at the Army Foundation College based in Harrogate. His prior training and experience was ideal in providing an effective critical evaluation of the questionnaires.

Volunteer 2. Volunteer 2 was also an education officer studying on a different language course. One of her previous job roles included working at ATC Pirbright and so is accustomed to the training programme the recruits go through.

Volunteer 3. Volunteer 3 is a soldier and the only one who has been through the exact same recruit training programme. She holds the rank of Lance Corporal and completed the course

in 2012, so whilst there may have been minor updates the course has not been fundamentally changed since that time.

Whilst language learning is not an exact replica of Phase 1 training, the participants are all in a learning environment. This means that although the questions are aimed at the recruits, the generic nature of the questions means that they could be applied to other learning environments.

Adaptations

The interviews proved fruitful in terms of adapting the questions and layout to make it more specific for the recruits learning context. For example, the word “issues” is used in a number of questions, which was deemed too vague and could prove confusing as recruits may think it refers to potentially emotional issues due to the rigours of the course. Other words that were thought of as too vague or irrelevant were changed and given a more specific context such as adding military words such as unit, platoon and section.

Also, the layout of the scale was altered on Pilot 1. The scale was originally laid out vertically, however the feedback provided by the volunteers suggested it would be more beneficial to lay the scale out horizontally as it would be easier to visualise and would be consistent with other questionnaire parts. Along with this it was suggested to include the scale after each question so that the recruits could circle their preference as opposed to writing it in, again acting as a better visualisation for the recruits.

Each pilot set was altered based on feedback that would help contextualise the wording for the recruits without detracting from the meaning of the questions being asked. After completing the changes, the pilot sets were then taken to Pirbright for the next phase of the validation process.

Phase 3 – Recruit Critiques

With the initial critique complete, the next phase saw the pilot sets conducted with recruits from Pirbright. This was done in order to replicate the same target audience as it would be during the main study. The aim was to again refine the question set such as lay out and word order to make the questions understandable without detracting from the meaning.

The pilot took place in the education wing at Pirbright. This is where recruits come to complete literacy and numeracy courses as a requirement that all recruits leaving Phase 1 are at a minimum of Level 1 for both areas. Permission was granted by the education wing Officer in Command (OIC) to conduct the questionnaires for two groups before they commenced their lessons as to not negatively impact on their studies.

Two groups of approximately 30 recruits were selected: Tobruk platoon who were in Week 2 of training, and Guthrie platoon who were in Week 12. This was an almost ideal replication of the Main Study as the two platoons represented the ‘pre’ and ‘post’ timings of the training programme that had been identified in Chapter 3 (Methodology).

Tobruk platoon were the first group to provide feedback. As time was a very limiting factor, the platoon was split in half and had a pilot each i.e. 15 recruits had Pilot 1 and 15 and Pilot 2. The study was explained to them before they completed their respective questionnaires and consent forms

were also signed. Once they completed the forms the recruits were asked to provide verbal feedback, as this was a more time-efficient method, and it could be recorded on an audio device.

Unfortunately, no feedback was volunteered, possibly due to several factors including tiredness and a remaining undercurrent of disorientation as they had only recently commenced their training programme. Also, as they were a new group some may have been reluctant to suggest anything in case their peers thought it 'stupid'. However, the lack of feedback does not necessarily mean that there was not any; indeed, the silence perhaps speaks volumes about the wording etc. which was considered. During the opening brief the recruits were encouraged to write on their sheets if they did not understand something e.g. circle it, put a question mark over it; however, after examining the sheets afterwards no written feedback was added.

The second platoon, Guthrie, was in week 12 of their training. The process as conducted with Tobruk was repeated i.e. introduction, pilot sets split, feedback given and recorded. This meant that each questionnaire had been given to a total of 30 recruits each for feedback. Guthrie platoon provided much more feedback during the discussion part of the trial. They highlighted words and questions that were too vague and needed further examples to explain the meaning of some words including abbreviations such as "CCF" (Combined Cadet Force) which was wrongly assumed that they would know. Also, it was suggested that the questions of Pilot 1, Part 1 be reordered as some questions felt repetitive even though they focussed on different subcategories.

The Main Study conducted a similar process based off the trial. The time it took for recruits to complete the questionnaire was noted at approximately 10 minutes. This was factored into the start of their lessons. In terms of interviews, the platoon instructors also come to the education wing as they must march their platoon around the camp. Whilst the platoons are in their lessons, the instructor was asked to volunteer for a short, anecdotal interview in order to confirm whether they had attended the DTTTv2 course. The feedback provided by DCLC participants and Pirbright recruits was taken into consideration for the final instrument selection phase.

Phase 4 – Final selection

After considering the feedback that was provided, the questionnaire for the Main Study was selected as Part 1 from Pilot 2 and Part 2 from Pilot 1. This choice was based on the amount of feedback that was given for each part and asking volunteers which ones they felt more comfortable in answering honestly. It seemed logical to assume that the more feedback each part received resulted in more changes being required, therefore the less understandable the content was and the more it would need to be altered from the original version.

The selected self-regulating and motivation question set is based on the MSLQ (Pintrich et al, 1991). This was chosen as it is closer to the original format and required less alteration. Rather than changing the questions and risk losing the meaning of what was being asked, the questions that were most relevant to the focus of the study were selected. This meant that the number of questions could be reduced from the original 80 to 22, which in turn reduces the time it takes to complete whole questionnaire as that was one of the main constraining factors.

In regard to selecting the self-reflection questionnaire, the adapted version from Kember et al (2000) was chosen. This was due for two reasons: similarly with the MSLQ, the question set required less alterations meaning that it was closer in meaning to the original format. This meant that, whilst the

Business Balls version had a scoring system that could be fed back to the recruits, it was not as academically proven as Kember's version.

Likert-scale questions were used in the questionnaire in order to score the participants' responses against a set of statements. This scale was selected, as opposed to employing a dichotomous yes or no response or indeed multiple-choice questions, as it allowed the recruits to choose their own view on the questions. Using the scale helped to facilitated individual and nuanced but straightforward responses in reply to the potentially complex questions. It also included undecided or neutral responses in order to accommodate those who were unsure. The complete survey has been provided at Appendix 1.

4.2.2 Setting & participants

PAR and Non-PAR Definitions

When discussing PAR or non-PAR groups, this refers to a platoon's instructor qualifications. If the instructor has successfully completed the DTTTv2 instructor training course, which contains the teaching of the PAR methodology, then the recruits in those platoons are referred to as PAR or PAR trained. If instructors had not attended the DTTTv2 course but are still the lead instructor of a platoon, then those recruits are deemed as non-PAR or non-PAR trained recruits. Table 4.1 demonstrates the balance of PAR-trained and non-PAR instructors against the ratio of recruits. The frequency table shows that there was a difference of $n=9$ between the number of recruits who had received either of the instructional types. PAR-trained instructors taught 51.9% of the 239 participants ($n=124$), leaving 48.1% ($n=115$) of Non-PAR recipients. This showed that there was a relatively even balance when comparing the two instructional approaches during further analysis.

Table 4.1 Instructor Qualifications across both conditions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-PAR	115	48.1	48.1	48.1
	PAR	124	51.9	51.9	100.0
	Total	239	100.0	100.0	

Of course, whether or not the respective instructors adopted and effectively used the respective PAR or non-PAR approach in Phase 1 training was not recorded and observed. As noted in Chapter 2, the time restrictions of the Phase 1 timetable could impact the ability to effectively deliver the same lessons in a constructive, student-centred manner, despite holding the PAR qualification. Conducting a sufficient amount of observations of both the PAR and non-PAR instructors would be unrealistic to achieve.

Participants

A total of 258 respondents were collected over a period of February to October 2016. This figure comprised of the combined Pre and Post questionnaire values collated from in total ten different platoons at ATC Pirbright. Of the ten platoons, eight platoons were used for the main study as two platoons were used for pilot testing the instruments as described earlier in this chapter. This left an

even four PAR and four non-PAR platoons of recruits. The four PAR platoons constituted 134 male and 0 female recruits, with an average age of 22 (SD=3.275). The four non-PAR platoons consisted of 95 male and 30 female recruits, with an average age of 22 (SD=3.360).

This led to examining the remaining data set to evaluate whether respondents should be excluded from follow-up analyses due to missing values. In particular, a number of data fields within the post-test were entirely blank. This denotes that a particular recruit might have been absent from the platoon when the data was collected. This could have occurred for a number of reasons, such as a dental appointment, or moving to Sword platoon (the rehabilitation platoon) due to injury. In any case, the purpose of the study was to measure the effect of training received either by a PAR-trained instructor or not. To include wholly blank data fields, as opposed to one or two unanswered questions, would offset the scores of further analysis as they do not render a comparative response to the Pre question set. Ideally, all the sets would have been completed fully; however, it does not give a true measure of any emergent relation that would occur, which is key to satisfying the research question.

As such, the decision was made to remove participants who had left wholly blank data i.e. for Pre or Post questionnaire responses. That was accomplished by recoding the Class column numerically and selecting cases on the conditional that only values associated with the Main Study platoons would be counted. A total number of 19 participants, 10 PAR and 9 non-PAR, were identified that satisfied that criteria. Those participants who filled in the majority of the questions remained within the data set. Due to the time restrictions and number of recruits at any given session, it was incredibly difficult to check each one for full answer sets. The reasoning behind allowing these results into the main data set was that it would be more beneficial to have a blank, honest response as opposed to one that was informed because they were unsure how to answer and thereby indirectly skewing the data. Overall the total number of responses was reduced from $n=258$ to $n=239$. In other words, 93% of participants responded to both pre and post-tests, which is a high response rate, in particular for social science research and educational research in particular. The demographics of the participants were further broken down as follows:

Gender

There was a considerably higher proportion of male 88.7% ($n=212$) recruits compared to female 11.3% ($n=27$). However, this is representative of the uptake of recruits into the British Army.

Age

The range of ages spread from 17 to 32 years old with the most frequent age of 18 years old contributing to 18% ($n=43$) of the total. It was notable that 56% ($n=133$) of participants were aged 17-21. This could be a factor for discussion for further studies when examining the relationship between the age bands of 17-21 and 22-32 year olds and how the training affected their performance compared to the key constructs of motivation, self-regulated learning and reflection.

Education background and prior military experience

Table 4.2 Educational background frequency

Education		Frequency	Percent
Valid	NA	1	0.4
	GCSE	90	37.7
	A-Levels	123	51.5
	Degree	23	9.6
	Post Graduate	2	0.8
	Total	239	100

Whilst the British Army has a minimum entry standard of D grades in GCSE Maths and English, and accepting Entry Level 3 standard for certain roles, it was interesting to note that over half of the participants ($n=123$) had achieved A-Levels as indicated in Table 4.2. Although the grades were not requested, it still showed reaching a level of education that goes against some stereotypical views of British Army soldiers. Bolstering that view point was 10.4% ($n=25$) who had studied at Undergraduate or Postgraduate degree level. As with the age bands, it would be intriguing to see if educational background had any significant affect when combined with that of Phase 1 training in follow-up studies.

Table 4.3 Prior Experience

Experience				
	Frequency	Percent	Valid Percent	Cumulative Percent
None	173	72.4	72.4	72.4
Cadets etc	57	23.8	23.8	96.2
Ex Serving	9	3.8	3.8	100.0
Total	239	100.0	100.0	

Table 4.3 indicates that of the 239 valid values, 72.4% ($n=173$) did not claim to have any prior military experience, leaving over a quarter who had received some form of training or preparation, or had previously served in an alternate armed service.

4.2.3 Procedure

As mentioned, ATC Pirbright was used as the data collection source due to the PAR-trained instructors and high yield of recruits. The data was collected between February to October 2016. Access to the training programme was made available by permission from the Chief Instructor of the education wing, which is where it was agreed that the platoons would be intercepted for the data collection. In collaboration with staff in the education wing, specific times were chosen for when platoons would be having lessons. This also allowed for planning a balance of PAR and non-PAR instructors. This was confirmed by the researcher whilst recruits completed the questionnaire.

As to not positively or negatively impact their training programme, it was negotiated with education wing staff that the questionnaire be completed at the end of recruits' lessons and before they moved onto their next training serial. Selected platoons were chosen during Week 2 for the Pre-questionnaire and Week 12 of their training programmes for the Post-questionnaire completion. These weeks were chosen as access was limited during Week 1, but more importantly Week 12 comes before any of the final summative assessments. If students were to complete the questionnaire after either being successful or failing the course, this could affect their responses. There was an additional need to schedule the follow-up interviews during the remaining two weeks of their course.

Table 4.4 summarises the platoon consistencies. Ideally there would be at least two female platoons chosen so that there would be a balance of PAR and non-PAR female platoons; however due to recruiting timings this was not possible within the timeframe of this research.

Table 4.4 Summary of data collection source

Platoon Name	Recruits (total n=239)	Gender	PAR or Non-PAR instructor
Tangier	24	Male	PAR
Moriarty	29	Male	PAR
Waterloo	30	Female	PAR
Lucknow	32	Male	PAR
Delhi	28	Male	Non-PAR
Kajaki	30	Male	Non-PAR
Smith	31	Male	Non-PAR
Woods	35	Male	Non-PAR

4.2.4 Data Analysis

In order to test whether the participants were equally balanced between the two conditions based upon age, educational background, and prior experience at the beginning of Phase 1, Table 4.5 illustrates the ANOVA of PAR vs non-PAR. As indicated in Table 4.4, one in four variables (gender) showed significant differences between PAR vs non-PAR participants, indicating that there was a range of responses between the two conditions. As one platoon in the PAR condition was female only (Waterloo), there were obviously more women in the PAR condition. There were no differences in terms of age, educational background, and prior military experience between the two conditions.

Table 4.5 Demographic indicators across the two conditions (PAR vs non-PAR)

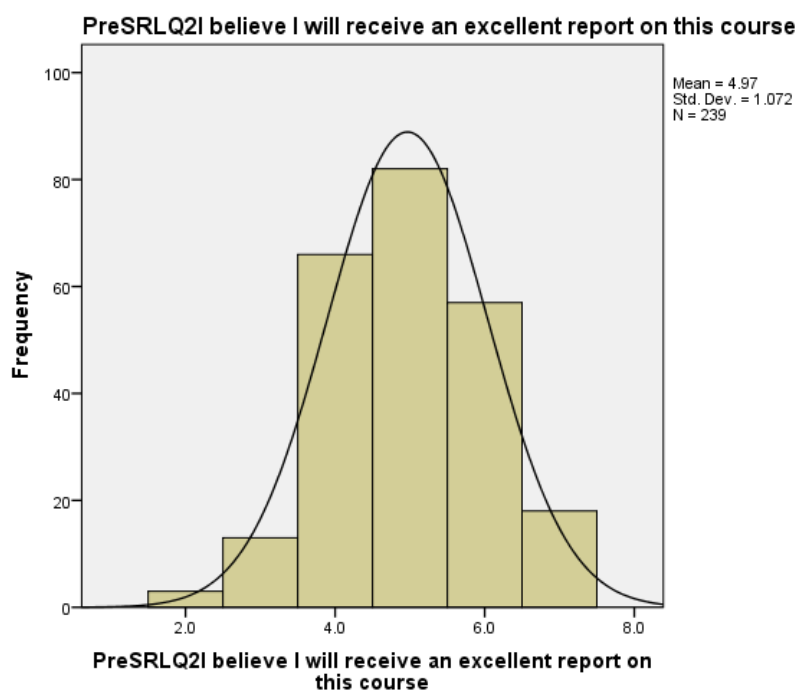
	PAR		non-PAR			
	M	SD	M	SD	F-value	Eta
Gender	1.22	.41	1.00	.00	31.7**	.118
Age	21.50	3.28	21.53	3.36	.005	.00
Educational Background	1.72	.69	1.76	.63	.204	.001
Prior Experience	.28	0.53	0.35	.55	.878	.004

n = 239 ** p < .01

Distribution of Responses

In line with Field (2013), each individual question and key construct was examined for distribution by using a histogram of the values to demonstrate it graphically. This aided in determining whether the value was normally distributed. As it was, the frequencies indicated that most of the variables were normally distributed. It would be impractical to include a histogram of each individual variable; however, an example can be seen in Figure 4.1.

Figure 4.1 Example of response distribution



Reliability

As the data set had been finalised as described in the participants section, the key constructs could then be tested for reliability. The reliability is the overall consistency of a measure from a data set. A measure is said to have a high reliability if it produces similar results under consistent conditions or contrastingly the less reliable a measure, the greater the amount of error.

"It is the characteristic of a set of test scores that relates to the amount of random error from the measurement process that might be embedded in the scores. Scores that are highly reliable are accurate, reproducible, and consistent from one testing occasion to another. That is, if the testing process were repeated with a group of test takers, essentially the same results would be obtained."

(National Council on Measurement in Education, 2015)

Because error is random and does not correlate with anything, the more error a variable contains the lower the expectation of that variable to correlate with any other variable. This is why it is

important to check the reliability of instruments used, such as the questionnaire in this study, to decipher its appropriateness. It is particularly imperative when using a Likert scale, as has been used in this study, to test for reliability due to the various factors that could affect the internal consistencies of key constructs. For this, calculations and subsequent reports are rendered using Cronbach's alpha coefficient to calculate for internal consistency. Once the reports were calculated on the key constructs it was important that only the summated scales were utilised for further analysis and not the individual questions. If not, then the reliability of the items would potentially be lowered.

Cronbach's alpha is a test-reliability technique that requires a single test administration to provide a unique estimate of the reliability for a given test (Tavakol & Dennick, 2011). It is the average value of the reliability coefficients that are obtained for all possible combinations of items when split into two half-tests, with results normally ranging between 0 and 1 (Tavakol & Dennick, 2011). However, there is no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale.

Whilst the reports rendered a variety of information such as squared multiple correlations, the judgment pertaining to the reliability of the key constructs was considered using a 3-point analysis:

- 1) Alpha reading
- 2) Re-read of questions
- 3) Delete item if necessary

As mentioned the closer the alpha reading is to 1, the higher the reliability. The lowest limit was set at $\alpha=0.6$, which is in line with common guidelines of social science research. If the reading was below this then the next stage of the analysis would occur. This involved examining the individual questions in the key construct in order to gauge similarities or differences in the potential meaning interpreted by the recruits when they were reading it. This included use of similar words and phrasing. This was balanced against the overall alpha reading if an item was to be deleted. This reflected the importance of having multiple items within a construct as it allows for flexibility of negotiating the removal of items to raise the consistency of the construct as a whole. This cannot be achieved if there are less than 3 items in the construct.

Key Constructs

As discussed earlier in this chapter, the questionnaire used for Study 2 had undergone selection and preliminary trials in order to ensure it was fit for purpose. The selected self-regulated learning and motivation question set was based on the MSLQ (Pintrich et al, 1991). This was chosen as it was closer to the original format and required less alteration. The MSLQ has been used multiple times and forms the basis for many other research papers. A review of the MSLQ was conducted by Artino (2005) which further highlighted the internal consistencies of the clusters:

As such, the reliability scores for each cluster were relatively high, ranging between 0.69 – 0.80. The strong internal consistencies meant that the reliability would follow through to this study, as long as the question forms were balanced between keeping the original meaning but reworded in a fashion that was reflective of the context it was used for. For this thesis, we chose to focus only on 6 out of 15 scales because these were the most relevant to the study. The other scales such as time/study

and environment management are made redundant due to the regimented timetable that the recruits follow. In addition, any free time or extra study time is measured via the included scales such as metacognitive self-regulation.

In regard to selecting the self-reflection questionnaire, the adapted version from Kember et al (2000) was used. The second part of the questionnaire had also been academically tested for reliability. It consisted of four main clusters; Habitual Action, Understanding, Reflection and Critical Reflection. Each of the clusters was tested for internal consistency using Cronbach's alpha, which yielded positive values. As with the MSLQ, the questionnaire formed a solid basis for reliability for the questionnaire that would eventually be used for this study. The same questionnaires that were used for this study also grouped question sets into clusters, forming the key constructs. The motivation and self-regulated learning clusters were based on those described in Artino's (2005) MSLQ review. Therefore, this study used a total of 10 constructs:

Motivation:

1. Intrinsic Goal Orientation (IGO)
2. Extrinsic Goal Orientation (EGO)
3. Control of Learning Beliefs (CLB)
4. Critical Thinking (CT)
5. Self-Efficacy for Learning & Performance (SELP)

Self-Regulated Learning:

6. Metacognitive Self-Regulation (MSR)

Reflection:

7. Habitual Action
8. Understanding
9. Reflection
10. Critical Reflection

Unreliable key constructs

Following the guidelines set out above, one item was removed. SRLQ14 ("I often find myself questioning things I hear or read on this course to decide if I find them convincing") was removed from the Critical Thinking construct as there was no significant link with the other items in its construct ($\alpha = .438$). Removing the item increased the reliability of the key construct to a more reliable level ($\alpha = .667$).

RP12 from the Habitual Action construct was also removed due to low alpha readings. With its inclusion the reliability of the construct was ($\alpha = .363$). However even after its removal the reliability still did not reach the minimum requirement ($\alpha = .517$). The decision was made to keep the key construct despite the lower alpha reading. This was due to being relatively close to the minimum level and also that removal of another item would leave only one item remaining in the key construct. Therefore, we caution the reader to be extra careful when interpreting the findings in this respective scale.

The Critical Reflection construct had to be completely removed due to its low reliability ($\alpha = .189$). With only two items the construct could not have any items removed. Due to its similarity with the Reflection construct, it was decided that the Reflection construct would still be able to effectively capture the same themes as Critical Reflection would. As such the decision was made to remove the construct. Table 4.6 provides a summary of final alpha readings of all items.

Table 4.6 Pre and Post alpha readings for instrument

Scale	N items	Question	Pre α	Post α
Intrinsic Goal Orientation	3	SRLQ1 - I prefer course content that really challenges me so I can learn new things.	.680	.619
		SRLQ10 - The most satisfying thing for me on this course is trying to understand the content as thoroughly as possible.		
		SRLQ21 - On a course like this, I prefer content that arouses my curiosity, even if it is difficult to learn.		
Control of Learning Beliefs	3	SRLQ6 - It is my own fault if I don't learn the material on this course.	.626	.647
		SRLQ8 - If I try hard enough, then I will understand the course material.		
		SRLQ16 - If I don't understand the course material, it is because I didn't try hard enough.		
Critical Thinking	2	SRLQ9 - Whenever I read or hear a conclusion or idea, I think about possible alternatives.	.717	.667
		SRLQ19 - I try to construct my own ideas that relate to what I am learning.		
Extrinsic Goal Orientation		SRLQ3 - Getting a good report in this class is the most satisfying thing for me right now.	.777	.652
		SRLQ5 - If I can, I want to do better on the course than most of the other recruits.		
		SRLQ11 - I want to do well on the course because it is important to show my ability to my family, friends, employer or others.		
Metacognitive Self Regulation	6	SRLQ4 - I try to change the way I learn in order to fit the course requirements and the instructor.	.721	.642

		SRLQ7 - If I find something difficult to understand, I change the way I try to learn it.		
		SRLQ13 - During lessons I often miss important points because I'm thinking of other things.		
		SRLQ15 - When I become confused about something I'm trying to learn, I go back and try to figure it out.		
		SRLQ17 - I question myself to make sure I understand what I have been learning.		
		SRLQ22 - If I get confused taking notes during instruction, I make sure I sort it out afterwards.		
Self-Efficacy for Learning & Performance	4	SRLQ2 - I believe I will receive an excellent report on this course.	.869	.840
		SRLQ12 - Considering the difficulty of this course, I think I will do well.		
		SRLQ18 - I'm confident I can learn the basic concepts taught on this course.		
		SRLQ20 - I expect to do well on this course.		
Habitual Action	2	RP1 - When I am working on some activities, I can do them without thinking about what I am doing.	.517	.548
		RP5 - On this course we do things so many times that I started to do them without thinking about it.		
Understanding	3	RP2 - This course requires me to understand concepts taught by the instructor.	.762	.628
		RP6 - To pass this course you need to understand the content.		
		RP9 - I need to understand the material taught by the instructor in order to perform practical tasks.		
Reflection	3	RP3 - I sometimes question the way others do something and try to think of a better way.	.638	.596

		RP10 - I often reflect on my actions to see whether I could have improved on what I did.		
		RP14 - I often re-evaluate my experience so I can learn from it and improve my next performance.		

Effects size

In order to qualify as statistically significant, the reading viewed in the ANOVA table must be $p \leq 0.05$, which is the default setting based on a Bonferroni Type Correction employed by SPSS programming. This essentially shows that there is a 95% assurance of the significance in the difference between PAR and non-PAR. However, a drawback of using this approach is that if the sample is large, then even a small difference between groups could become significant. A relatively small sample may not find significant differences in the same respect. If key constructs were significantly different at their starting point, then a further breakdown of the reading is required.

One way of measuring the relative impact of the significance between two groups is to use eta-squared. This analytical model uses Cohen's-d (η^2) to measure the effect size of the significance, which can be categorised into 3 sizes:

- $\eta^2 = .02 \sim$ small
- $\eta^2 = .13 \sim$ medium
- $\eta^2 = .26 \sim$ large

If the ANOVA readings proved significant then the eta-squared calculation would be used to determine the effect size as small, medium or large based on Cohen's-d. Richardson (2011) clarifies the differences between eta-squared and partial eta. For the purposes of this study and in accordance with his suggestions the eta-squared scores will be used to determine the effects size.

4.3 Results

This section shows that the mean totals for the pre and post questionnaire key constructs were mixed. In regard to the pre-values specifically, half of the constructs showed that there was no statistical significance between the PAR and non-PAR groups, meaning that they started at relatively the same stage. However, all the constructs displayed a small significance effect size. Whilst this gave approximate indications of start states, it accounted only for the overall total means from recruits; it was important therefore to further breakdown the data in order to ascertain the difference between PAR and non-PAR groups.

4.3.1 RQ2 - What was the impact of PAR on recruits in regard to motivation levels?

RQ2 considered the extent of the impact that PAR would have on recruits based against the independent variable of recruits who had non-PAR instructors. As highlighted in Chapter 2, motivation was selected as one of the core focus areas as the more student-centric approach facilitates a greater degree of independence and responsibility for learning, thereby increasing motivational levels. Based on the MLSQ quantitative instrument, motivation was measured based on the following key constructs:

- Intrinsic Goal Orientation (IGO)
- Extrinsic Goal Orientation (EGO)
- Control of Learning Beliefs (CLB)
- Self-Efficacy for Learning & Performance (SELP)
- Critical Thinking (CT)

Table 4.7 outlines the mean scores for each of the pre-questionnaire in relation to the motivation construct. This was completed in order to ascertain the start state of the recruits as they commence their training programme. Taking a cut-off of 5 out of 7 indicating a positive response, on average, 71% of participants were positive at the beginning of their Phase 1 training in terms of Intrinsic Goal Orientation (IGO), whereby 65% of PAR participants and 78% of non-PAR participants were positive about their Intrinsic Goal Orientation. On average, 83% of participants were positive at the beginning of their Phase 1 training in terms of Extrinsic Goal Orientation (EGO), whereby 73% of PAR participants and 94% of non-PAR participants were positive about their extrinsic motivation. In terms of Control of Learning Beliefs (CLB), 39% of participants were positive at the beginning of their Phase 1 training, whereby 33% of PAR participants and 46% of non-PAR participants were positive. In terms of Self-efficacy of Learning & Performance, 68% of participants were positive at the beginning of their Phase 1 training, whereby 59% of PAR participants and 76% of non-PAR participants were positive about SELP. Finally, in terms of Critical thinking, 28% of participants were positive at the beginning of their Phase 1 training, whereby 30% of PAR participants and 27% of non-PAR participants were positive. As is clear from these descriptive statistics, even though the participants were randomly sampled across different instructors recruits in the non-PAR condition seem to be more confident in terms of motivation and critical thinking, although in particular for critical thinking and control of learning beliefs there is still room for improvement.

In theory the scores should be of similar value as the recruits have only recently commenced the training programme on which the items in the questionnaire relate to, therefore there should be relatively little effect on their question interpretation. To measure for any variations, an ANOVA was employed to analyse the mean differences in the items between both conditions along with comparing the effects size of each key construct. The results are also highlighted in Table 4.7.

Table 4.7 Motivation key constructs Pre mean scores

	Par		Non-Par		F-value	Eta-squared	Effects size (η^2)
	M	SD	M	SD			
1. IGO	5.38	1.07	5.72	.77	7.671**	.031	Small
2. EGO	5.74	1.20	6.24	.73	14.946**	.059	Small
3. CLB	4.80	1.16	5.04	1.11	2.590	.011	Small
4. SELP	5.37	1.23	5.76	.83	8.185**	.033	Small
5. CT	4.97	1.19	5.27	.95	4.664**	.019	Small

n = 239 * ** p < .01

The analysis shows that there was a small effect in all 5 of the motivation key constructs. This indicates that the recruits are starting from marginally different points within the two conditions.

Table 4.8 illustrates the comparison between pre and post mean scores of the motivation key constructs across the two conditions. Again, taking a cut-off of 5 out of 7 indicating a positive response, 78% (relative to 65% at the beginning) of PAR participants and 85% (relative to 78% at the beginning) of non-PAR participants were positive about their Intrinsic Goal Orientation at the end of Phase 1 training. In other words, both for PAR and Non-PAR IGO improved in general. Similarly, most participants were positive at the end of their Phase 1 training in terms of Extrinsic Goal Orientation (EGO), whereby 90% (+17%) of PAR participants and 91% (-3%) of non-PAR participants were positive about their extrinsic motivation. In terms of Control of Learning Beliefs (CLB), a minor improvement was reported, whereby 33% (=0%) of PAR participants and 52% (=6%) of non-PAR participants were positive. In terms of Self-efficacy of Learning & Performance, only PAR participants noted a positive increase, whereby 70% (+14%) of PAR participants and 76% (=0%) of non-PAR participants were positive about SELP. Finally, in terms of Critical thinking, a small increase was found for in particular non-PAR participants, whereby 34% (+4%) of PAR participants and 45% (+18%) of non-PAR participants were positive. As is clear from these descriptive statistics, in general students increased their scores on the MLSQ questionnaire, although in general the scores for critical thinking remained relatively low. The difference is highlighted along with which of the conditions demonstrated the greatest increase between pre and post mean scores.

Table 4.8 Motivation key construct pre and post mean scores

Construct	Condition	Pre Mean	Post Mean	Diff between Pre and Post	Greater increase in scores	Diff between PAR and non PAR
IGO	PAR	5.38	5.70	0.32	PAR	0.10
	Non PAR	5.72	5.94	0.21		
EGO	PAR	5.74	6.06	0.32	PAR*	0.35
	Non PAR	6.24	6.21	-0.03		
CLB	PAR	4.80	5.01	0.21	PAR	0.06
	Non PAR	5.04	5.19	0.15		
SELP	PAR	5.37	5.68	0.31	PAR	0.16
	Non PAR	5.76	5.92	0.16		
CT	PAR	4.97	5.27	0.30	PAR	0.11
	Non PAR	5.27	5.47	0.19		

n = 239 * p < .05

What Table 4.8 demonstrates is that whilst the pre mean scores in the PAR condition were lower than non-PAR, all of the key constructs increased to a greater degree than non-PAR. In particular for Extrinsic Goal Orientation this change is significantly higher for PAR recruits relative to non-PAR recruits at a 5% confidence level, with a small effect size of .02. In general, this seems to suggest that PAR-trained instructors did have some impact on recruits' self-reported motivation levels. However, although all of the key constructs have increased, it is not to a statistically significant amount with the exception of EGO. Conversely it also posted the highest mean PAR and non-PAR values. This indicated that recruits had developed their external goal orientation skills and by the end of the course thought positively of their ability in it. That in itself showed some initial degree of support for the effectiveness of PAR on developing student-centred learning, in particular given that PAR students had relatively lower MSLQ and critical thinking scores at the start of Phase 1 relative to non-PAR students. At the same time, given that for all 5 constructs no significant differences were found between PAR and non-PAR recruits at the end of Phase 1, there was a need to be careful in jumping to conclusions. Therefore, in the remainder of this Chapter as well as in Chapter 6 more detailed quantitative and qualitative analyses will be conducted to further unpack these initial findings.

4.3.2 RQ3 – What was the impact of PAR on recruits in regard to self-regulated learning?

RQ3 follows the same format as RQ2 but instead focuses on the impact that PAR might have on recruits' self-regulated learning (SRL) ability. Similarly, SRL was highlighted in the literature review (Chapter 2) as one of the core focus areas as the more student-centric approach facilitates a greater degree of independence, increasing the ability to show initiative towards a student's own learning. Based on the MSLQ quantitative instrument, SRL was measured based on the following key constructs:

- Metacognitive Self-Regulation (MSR)

Table 4.9 outlines the mean scores for each of the pre questionnaire in relation to the SRL construct. This was completed in order to ascertain the start state of the recruits as they commence their training programme. In theory the scores should be of similar value as the recruits have only recently commenced the training programme on which the items in the questionnaire relate to, therefore there should be relatively little effect on their question interpretation. Taking a cut-off of 5 out of 7 indicating a positive response, most recruits had a relatively low Metacognitive Self-Regulation Score (MSR) at the beginning of their Phase 1 training, whereby 41% of PAR participants and 40% of non-PAR participants were positive about their metacognition. To measure for any variations, an ANOVA was employed to analyse the mean differences in the items between both conditions along with comparing the effects size of each key construct. The results are also highlighted in Table 4.9.

Table 4.9 SRL key constructs Pre mean scores

	Par		Non-Par				
	M	SD	M	SD	F-value	Eta-squared	Effects size (η^2)
MSR	4.7997	.98306	4.9055	.69552	.909	.004	NA

n = 239

The analysis shows that there was no significant difference between the two conditions at the start of Phase 1. This equates to the mean scores starting from a similar point. Table 4.10 illustrates this comparison between pre and post mean scores of the SRL key construct across the two conditions. The difference is highlighted along with which of the conditions demonstrated the greatest increase between pre and post mean scores. Again, taking a cut-off of 5 out of 7 indicating a positive response, 43% (+2%) of PAR participants and 53% (+13%) of non-PAR participants were positive about their metacognition.

Table 4.10 SRL key construct pre and post mean scores

Construct	Condition	Pre Mean	Post Mean	Diff between Pre and Post	Greater increase in scores	Diff between PAR and Non PAR
MSR	PAR	4.80	4.78	-0.02	Non PAR	0.20
	Non PAR	4.91	5.08**	0.17		

n = 239 *p<.05

Table 4.10 shows that, similarly to motivation, the non-PAR condition had a higher pre and post mean score than PAR. The meta cognitive scores remained the same over the duration of the training for PAR, while in contrast the non-PAR scores improved over time. In fact, the post-scores were significantly higher for non-PAR participants in comparison to PAR participants. In other words, in contrast to our initial expectations this does not support RQ3 that asks if PAR has a greater, positive impact on recruits in regard to SRL. Whilst these results relate to a negative impact of the PAR condition, overall the “Difference between PAR and Non-PAR” scores over time were not statistically significant. This suggests that other factors could be involved in determining the recruits’ ability to take the initiative for their own learning; Chapter 6 will triangulate the quantitative data in this chapter with the follow-up interviews.

4.3.3 RQ4 – What was the impact of PAR on recruits in regard to their reflective practice?

RQ4 considered the extent of the impact that PAR would have on recruits’ reflective practice. As highlighted in Chapter 2, reflection was selected as one of the core focus areas as the more student-centric approach facilitates should lead to more reflective practitioners. This in turn facilitates the British Army’s overall concept of creating ‘thinking soldiers’. The reflection theme was measured based on the following key constructs:

- Habitual Action
- Understanding
- Reflection

The second part of the questionnaire was used to measure any change in regard to the recruits’ reflective practice. As outlined in Chapter 3, the instrument used was not as widely tested and therefore not as academically robust as the MLSQ, which has an impact when analysing the results.

It is also worth bearing in mind that a Likert scale of 0-5 was used for the questionnaire to measure reflection as opposed to the 0-7 scale used to measure motivation and SRL.

Table 4.11 outlines the mean scores for each of the pre questionnaire in relation to the reflection construct. Taking a cut-off of >3 out of 5 indicating a positive response, 54% of PAR participants and 53% of non-PAR participants were positive about their Habitual Action at the beginning of their Phase 1 training. In terms of Understanding, 86% of PAR participants and 94% of non-PAR participants were positive in terms of the responses on this scale. In terms of Reflection, 54% of PAR participants and 80% of non-PAR participants were positive about their reflection skills. As was previously clear from the MSLQ descriptive statistics, even though the participants were randomly sampled across different instructors recruits in the non-PAR condition seem to be more confident in terms of Habitual Action, Understanding, and Reflection.

To measure for any variations, an ANOVA was employed to analyse the mean differences in the items between both conditions along with comparing the effects size of each key construct. The results are also highlighted in Table 4.11.

Table 4.11 Reflection key constructs Pre mean scores

	Par		Non-Par		F-value	Eta-squared	Effects size (η^2)
	M	SD	M	SD			
Habitual Action	3.60	.66	3.59	.65	.016	.000	NA
Understanding	4.34	.71	4.56	.57	7.112**	.029	Small
Reflection	3.97	.65	3.97	.64	.000	.000	NA

n = 239 ** p < .01

The analysis shows that 2 of the 3 key constructs for reflection were at a similar starting value between the two conditions, with only the Understanding construct displaying a small effect, and non-PAR participants had a higher self-reported Understanding. Table 4.12 illustrates this comparison between pre and post mean scores of the reflecting key constructs across the two conditions. Taking a cut-off of >3 out of 5 indicating a positive response, 56% (+2%) of PAR participants and 51% (-2%) of non-PAR participants were positive about their Habitual Action at the end of their Phase 1 training. In terms of Understanding, 94% (+8%) of PAR participants and 98% (+4%) of non-PAR participants were positive in terms of the responses on this scale at the end of Phase 1. In terms of Reflection, 76% (+22%) of PAR participants and 81% (+1%) of non-PAR participants were positive about their reflection skills at the end of the training. In other words, in particular the PAR recruits have substantially stepped up in terms of their own confidence in terms of Habitual Action, Understanding, and Reflection. The difference is highlighted along with which of the conditions demonstrated the greatest increase between pre and post mean scores.

Table 4.12 Reflection key construct pre and post mean scores

Construct	Condition	Pre Mean	Post Mean	Diff between Pre and Post	Greater increase in scores	Diff between PAR and Non PAR
Habitual Action	PAR	3.60	3.69	0.08	PAR	0.05
	Non PAR	3.59	3.63	0.03		
Understanding	PAR	4.34	4.54	0.21	PAR	0.15
	Non PAR	4.56	4.62	0.06		
Reflection	PAR	3.97	4.01	0.04	Non PAR	0.06
	Non PAR	3.97	4.07	0.10		

All but one construct, Habitual Action, had the PAR mean value culminating in a higher value than its non-PAR counterpart. Whilst this could facilitate a greater PAR growth to support the research questions, Habitual Action in fact had the lowest overall values compared to the other key constructs. When compared with the pre mean value, the difference could be substantial; however in this context it showed that repetitive training derived over the course of the training programme may not be as an effective teaching tool as initially considered.

The other notable value comparison within this context came from the mean values for the Reflection construct. This had similar differences between the PAR and non-PAR values with a higher non-PAR value. This suggested that whilst the recruits deemed themselves to be content with their reflective skills across the training programme, there may not have been sufficient opportunity to develop those skills further in order to critically self-evaluate their performance. This may have been due to a number of factors such as a lack of time. Whilst it is a part of the course, there are a multitude of other factors that constitute the training programme.

Summary

As indicated, 7 out of 9 key constructs demonstrated a greater increase in pre and post values using the PAR condition, with MSR and Reflection the only key constructs to have a greater increase in non-PAR. Although the results are so small that there are no statistically significant differences, both PAR and non-PAR recruits maintained a relatively high positive outlook in terms of motivation, SRL and reflection.

These results make it inconclusive in answering whether the PAR methodology helps recruits to increase their ability in those areas quicker than using current methods. The key construct of Habitual Action, which was non-significant in their respective effect sizes, was the only construct showing that the PAR mean was a higher total than the relative non-PAR mean value. All of key constructs reported higher non-PAR mean values compared with the relative PAR mean value.

As mentioned, these results hold the caveat that the non-PAR scores are higher in total within 7 out of 9 constructs, with Habitual Action scoring higher in the PAR condition. Contrary to these findings,

it is reasonable to assume that participation in training such as that in Phase 1 would increase due to the repetitive nature of the content (e.g. ceremonial drill) and this suggests that, ironically, PAR could better facilitate this type of learning.

As there was a lack of statically significant results, further investigation is now required in order to discover why this might be the case, for example why the Pre-test PAR and non-PAR scores were not as similar as they theoretically could be. In order to achieve this, the next section will discuss the potential issues drawn from these results such as the non-standardised pre mean scores. Also, correlations will be examined against platoons and what they consist of in regard to age, educational background, prior military experience and gender to ascertain more detail that may have caused the sporadic results.

4.4 Follow-up analyses and Discussion

4.4.1 Implications of findings

The aim of Study 2 of this thesis was to quantifiably analyse the impact of PAR on recruits' motivation, SRL and reflective abilities. The results stated in Section 4.3 illustrated a mixture of non-significant values when attempting to discern the impact of PAR. The results essentially proved inconclusive when answering research questions 2-4. There are a number of reasons why this occurred. For example, the recruits might not be able to look beyond their own perspective and overall were relatively satisfied when completing the surveys. This could have been combined with the instructors actually not training the recruits the way PAR was intended to be used. It is possible that, even with the best intentions, the instructors were unable to fulfil the requirements of a constructive lesson and simply returned to the status quo of the behaviourist approach. This section will explore other potential reasons for the mixed results including the sporadic start states and further comparisons between the platoons.

Start States

When considering the mixture of results, there could be a number of reasons that led to the pre-questionnaire mean values between PAR and non-PAR, effectively known as the recruits' start states. It is most likely that the individual questions of each key construct contributed to the variation as all the other variables would be considered constant; the data was collected within the same platoon of recruits, conducted at the same time and with the same questionnaire. If it were not due to the question structure, then the other key constructs may have also reported higher significance values.

However, whilst it is simple to state that recruits are from the same platoon and completed training at the same time, there could potentially be a number of variations affecting the results. For example, the platoons are comprised of between 20-30 individuals, with individual levels of interpretation based on their own experiences. This suggests that there could be wide range of interpretations when reading each question on the questionnaire. Along with this, there is a degree of subjectivity when using the Likert scale in order to convey their interpretation into a relatively narrow scoring system of 0-7 or 0-5. Whilst any two recruits may identically interpret a question, their answer could be within different ranges. This is also assuming that they understood the question in the first instance.

One theory that offers an insight into the range of questionnaire interpretations of the recruits is the Dunning-Kruger effect (1999). This theory suggests that those with a lower intellect generally overestimate their abilities as they have overall lower self-awareness. However, the more they come to understand of themselves, their level of self-perception increases. This could apply very aptly to the nature of Phase 1 training. The intensity of military basic training serves to highlight an individual's strengths and weaknesses that they probably did not even know they had, thereby increasing self-awareness. This is coupled by the actual training that helped to improve the skills of the recruits, increasing their metacognitive competence and helping them recognise the limitations of their abilities i.e. their '7 out of 7' now seems like a '7 out of 10'.

Not only this, but there is a question as to the genuine motives of the recruits. Phase 1 training is physically and mentally arduous and can be incredibly draining. Some of the platoons may have had physical training before coming to the Training Wing to complete the questionnaire. In addition to this, due to the timings of capturing the data highlighted in Section 4.2, completion of the questionnaire was conducted directly after the recruits had completed a Level 2 functional skills English diagnostic assessment. To then be bamboozled by an over energetic Captain asking them to complete yet another tedious task could have had a negative effect on how thoroughly they both read and answered the questions.

These factors, and the realisation that there was overall no relation between key constructs as measured by the Pre and Post structure, led to reconsidering the confidence and reliability in the instrument that the key constructs were measured accurately. To negate this, various steps were taken during the analysis phase when interpreting the quantitative data including rechecking each original questionnaire and double-checking data input by hand and conducting thorough reliability checks by applying ANOVA processing techniques.

The robust re-analysis of the data gave confidence in techniques and instrument used; however, the process only reaffirmed the lack of relation between the key constructs in both conditions. It is most likely therefore the individual's perception of the instrument that was the main catalyst for not only the sporadic start states but also the lack of significant findings. This in turn means that RQs 2-4 could not conclude that PAR leads to a positive, or at least a statistically significant, impact on motivation, SRL and reflection. In order to qualify these results, further analysis was conducted between the various platoons as opposed to the conditions.

Platoon Comparison

Tables 4.13 and 4.14 show the values for pre-questionnaire key construct mean scores within each platoon across the two conditions. These values were calculated in SPSS using the "select cases" function. Combined with the previously employed use of selecting the specific items to carry forward to this stage of analysis, it was also used to separate the PAR and non-PAR conditioned platoons in order to give a truer reading. As such, they were re-coded as PAR=2 and non-PAR=1. This ensured that the respective calculations were within the same condition and not across the entire cohort.

PAR platoons

As illustrated in Table 4.13 there was a mixture of start states across the various key constructs across the four platoons. The most notable result showed that Tangier platoon held the lowest values across all of the key constructs, but these were far lower with the SLRQ constructs compared

with the other PAR platoons. For example, within the EGO construct, Moriarty, Lucknow and Waterloo had a mean range of 5.97-6.22 whilst Tangier yielded 3.97. The other constructs demonstrated a similar trend across the platoons; however, Moriarty, Lucknow and Waterloo held relatively similar start states with the occasional difference e.g. the Lucknow CLB mean value was ~.4 lower than Moriarty and Waterloo.

The varying start states of the platoons were highlighted by the effect sizes they contributed to creating. As displayed in Table 4.13, 5 out of the 9 key constructs were shown to have a large effect size when comparing platoon start states (IGO, EGO, SELP, CT and MSR), with a further 3 showing a medium effect size (CLB, Understanding and Reflection) and only 1 with no significant effect size (Habitual Action). These results further compounded the varying start states found in the previous section. Similarly, there could be a myriad of reasons for the differences, for example the recruits' backgrounds, although the impact of the instructor would perhaps have a more prevalent role when directly comparing the different platoons.

Table 4.13 Pre-test scores between platoons in PAR condition

	Tangier		Moriarty		Lucknow		Waterloo				
	M	SD	M	SD	M	SD	M	SD	F-value	Eta-squared	Effect Size
IGO	4.04	.65	5.92	.65	5.43	.88	5.60	1.18	25.571*	.390	Large
EGO	3.97	.75	6.22	.75	5.97	.77	6.23	1.12	41.744*	.511	Large
CLB	3.84	.71	5.14	1.26	4.73	.89	5.14	1.14	8.634**	.178	Med
SELP	3.86	.58	5.86	1.04	5.66	.93	5.54	1.22	22.442*	.359	Large
CT	3.70	.69	5.38	1.00	5.07	.82	5.30	1.44	15.099*	.274	Large
MSR	3.70	.48	5.05	.84	4.99	.64	5.11	1.19	16.453*	.291	Large
Habitual Action	3.45	.52	3.61	.68	3.68	.60	3.64	.79	.631	.014	NA
Understanding	3.67	.59	4.63	.41	4.37	.63	4.40	.90	12.037*	.231	Med
Reflection	3.45	.40	4.14	.56	3.92	.59	4.17	.81	7.949**	.166	Med

n = 124 ** p < .01

Non-PAR platoons

The same analysis was then conducted in order to test whether there were differences between the platoons in the non-PAR condition. Table 4.14 illustrates that overall the conditions were at a relatively similar start state, with mean ranges <.5. The most differentiated construct, as it was within the PAR condition, was the CLB construct. This had the greatest range in what were otherwise similar start states across the platoons. Follow-up analyses (not illustrated) amongst the 6 non-PAR platoons found no significant differences between the key constructs, indicating that the non-PAR platoons were fairly similar at the beginning of Phase 1.

Table 4.14 Pre-test scores between platoons in non-PAR condition

	Smith		Woods		Delhi		Kajaki				
	M	SD	M	SD	M	SD	M	SD	F-value	Eta-squared	Effect Size
IGO	5.80	.58	5.69	.74	5.51	1.00	5.89	.71	1.276	.033	Small
EGO	6.19	.44	6.39	.59	6.11	1.14	6.26	.59	.788	.021	Small
CLB	5.40	.82	4.95	1.09	4.70	1.27	5.09	1.15	1.988	.051	Small
SELP	5.83	.69	5.66	.87	5.67	1.06	5.89	.69	.579	.015	NA
CT	5.14	1.22	5.34	.87	5.37	.79	5.23	.91	.341	.009	NA
MSR	4.90	.72	4.95	.76	4.85	.71	4.91	.60	.092	.002	NA
Habitual Action	3.57	.68	3.56	.74	3.69	.58	3.56	.61	.256	.007	NA
Understanding	4.56	.54	4.48	.82	4.61	.38	4.60	.39	.339	.009	NA
Reflection	3.89	.62	3.92	.77	4.12	.52	3.95	.60	.733	.019	NA

n = 115

Tangier Platoon

In order to rectify the results to ascertain what the impact would be without Tangier platoon, values were calculated as they previously were except with the removal of the Tangier values. This was done by recoding the Tangier data set in SPSS and using the “select cases” function in order to deselect the Tangier values. Table 4.16 demonstrates that Tangier platoon had surprisingly different pre-test results compared to the other platoons across all of the key constructs. This resulted in a range of effect sizes included medium and large effects, which should not be the case considering that the pre-test values should, in theory, be at the same or similar values.

Table 4.15 Pre-test scores between platoons in PAR condition recoded

	Moriarty		Lucknow		Waterloo				
	M	SD	M	SD	M	SD	F-value	Eta-squared	Effect Size
IGO	5.92	0.65	5.43	0.88	5.60	1.18	2.82	0.05	Small
EGO	6.22	0.75	5.97	0.77	6.23	1.12	0.94	0.02	NA
CLB	5.14	1.26	4.73	0.89	5.14	1.14	1.35	0.03	Small
SELP	5.86	1.04	5.66	0.93	5.54	1.22	0.79	0.02	NA
CT	5.38	1.00	5.07	0.82	5.30	1.44	0.73	0.02	NA
MSR	5.05	0.84	4.99	0.64	5.11	1.19	0.14	0.00	NA
Habitual Action	3.61	0.68	3.68	0.60	3.64	0.79	0.08	0.00	NA
Understanding	4.63	0.41	4.37	0.63	4.40	0.90	1.88	0.04	Small
Reflection	4.14	0.56	3.92	0.59	4.17	0.81	1.40	0.03	Small

n = 101 * p < 0.05, ** p < .01

Table 4.17 shows a comparison between effect sizes of the key constructs when Tangier values are included, as per the previous section, and excluded. As shown, there is a significant difference between the key constructs; 8 of the 9 key constructs have reduced by one or more sizes, with only Habitual Action remaining constant at its previous insignificant size. This demonstrates that the values presented by Tangier platoon had a significant impact on the start states of the key constructs, with the removal of Tangier leading to the remaining platoons starting in the theoretically similar start states, whereby as indicated in Table 4.17, no significant differences were found between PAR (without Tangier) and non-PAR participants at the start of Phase 1.

Table 4.16 Effect size differences in the Pre PAR condition

Key Construct	With Tangier	Without Tangier
IGO	Large	NA
EGO	Large	NA
CLB	Med	NA
SELP	Large	NA
CT	Large	NA
MSR	Large	NA
Habitual Action	NA	NA
Understanding	Med	Small
Reflection	Med	Small

Table 4.17 Pre key construct mean scores recoded (excluding Tangier)

	Par		Non-Par		F-value	Eta-squared
	M	SD	M	SD		
IGO	5.69	0.90	5.72	0.77	.079	0.00
EGO	6.15	0.87	6.24	0.73	.789	0.004
CLB	5.02	1.13	5.04	1.11	.014	0.00
SELP	5.71	1.06	5.76	0.83	.130	0.001
CT	4.71	0.93	4.69	0.86	.027	0.00
MSR	5.05	0.89	4.91	0.70	1.813	0.008
Habitual Action	3.64	0.68	3.59	0.65	0.256	0.001
Understanding	4.49	0.64	4.56	0.57	.713	0.003
Reflection	4.09	0.65	3.97	0.64	1.808	0.008

n =216 * p < 0.05, ** p < .01

This in turn had further effects on the post-test comparisons, as seen in Table 4.18. It shows that whilst there were greater increases within the PAR platoons, their overall scores were lower compared to the non-PAR platoons, whereby significant differences were found for IGO and MSR, while the other constructs were not statistically different. Table 4.18 demonstrates the overall comparisons between the recoded values of the key constructs across the two conditions. It is apparent that Tangier had a significant impact on the overall results based on the PAR values. Although the scores of non-PAR remain higher than PAR at the post-test, all except for MSR these differences were not statistically significant. In other words, these quantitative results indicated that both PAR and non-PAR participants developed motivation, regulation and understanding in a similar manner. While previously the scores of PAR were substantially lower due to the inclusion of Tangier, in follow-up analyses it seems to indicate that PAR recruits developed similar skills over time. Having said this, at the same time I initially assumed that PAR would lead to more positive effects in comparison to more traditional designs. This does not seem to be the case in the controlled design. In the remainder of this thesis, I will unpack why this might have been the case, in particular in

Chapter 5 where I will focus on the lived, qualitative experiences of participants in the two conditions.

Table 4.18 Key construct pre and post mean scores recoded

		Pre M	Post M	Diff between Pre and Post	Greater increase in scores	Diff between PAR and Non PAR
IGO	PAR	5.69	5.70	0.01	Non PAR	0.20
	Non PAR	5.72	5.94	0.21		
CLB	PAR	5.02	4.96	-0.06	Non PAR	0.21
	Non PAR	5.04	5.19	0.15		
CT	PAR	5.26	5.32	0.05	Non PAR	0.14
	Non PAR	5.27	5.47	0.19		
EGO	PAR	6.15	6.04	-0.11	Non PAR	0.07
	Non PAR	6.24	6.21	-0.03		
MSR	PAR	5.05	4.80	-0.26	Non PAR	0.43
	Non PAR	4.91	5.08	0.17		
SELP	PAR	5.71	5.68	-0.03	Non PAR	0.19
	Non PAR	5.76	5.92	0.16		
Habitual Action	PAR	3.64	3.71	0.07	PAR	0.04
	Non PAR	3.59	3.63	0.03		
Understanding	PAR	4.49	4.56	0.07	PAR	0.07
	Non PAR	4.56	4.56	0.00		
Reflection	PAR	4.09	4.04	-0.04	Non PAR	0.14
	Non PAR	3.97	4.07	0.10		

4.4.2 Summary

In this chapter, a robust quantitative investigation was conducted in order to determine the potential impact of PAR on recruits' motivation (RQ2), self-regulated learning (RQ3) and reflective abilities (RQ4). The results that were derived from analysis of a pre and post questionnaire were mixed and proved inconclusive. There are a number of reasons why this may have occurred, some of which are highlighted in section 4.4.1, however Chapter 5 will triangulate these results with the follow-up interviews in order to unpack these and any other emergent issues.

4.4.3 Study limitations

Whilst ideally there would be no limitations when collecting data, real world factors such as time and access do have an impact when considering methodological approaches. Not only did the author have a full-time job that was a 2-hour drive from Pirbright, but more importantly the recruits have a very busy schedule that is unrelenting for the entire 14-week programme. This means that finding available windows that overlap our schedules was the greatest deciding factor for the research instrument, however in a way it also made it more apparent what instrument to choose.

It is important to highlight that this study only provided a relatively limited degree of the recruits' experiences against the backdrop of wider aspects of Phase 1 training. As such, any future research should employ a longitudinal design in order to facilitate a deeper comprehension of the long-term effects of the impact PAR could have beyond the 14-week training programme. Also, whilst employing the questionnaire allowed for a large sample of responses to be collected, it is acknowledged that a limitation is a lack of in-depth responses that could be collected by other means such as interviews.

As it was the goal of this study to determine the impact of PAR on individuals, further work will be needed to highlight individual differences between a larger sample of PAR and non-PAR recruits. Having said that, this study is in the unique position whereby the training of instructors in the PAR methodology is in its infancy. This led to a balanced number of platoons who received their training from either a PAR-trained instructor or a non-PAR instructor. At the time of writing this it is still a requirement for all instructors who are posted to Phase 1 training establishments to attend the DTTTv2 course, meaning that ultimately all instructors will be using the same methodology, making it impossible to replicate these particular set of circumstances.

Of course, whether or not the respective instructors adopted and effectively used the respective PAR or non-PAR approach in Phase 1 training was not recorded and observed. Perhaps the PAR instructors were actually not fully teaching in a PAR-like manner, whereby they perhaps just taught in the way they were familiar with. This could also be due to the lack of time to implement changing the lessons sufficiently. An instructor usually works in Pirbright for two years, as with any posting (length of time in job). Of those two years, they will switch between instructing a platoon and other non-recruit centred duties e.g. guard duty. In reality they may only have two or three platoons, therefore teaching a specific lesson two or three times at the most. It is possible that the instructor may not have the time, or motivation, to fundamentally alter a lesson that they may only teach one more time, which might explain some of the reasons why there were no differences in the two conditions.

Overall, this chapter outlined a comprehensive depiction of how various groups of recruits encountered and reacted to the environment and instruction that they received. In the next chapter (Chapter 5), a qualitative analysis from follow-up interviews will be conducted in order to triangulate the results that were seen in this chapter. This should lead to a better understanding of the underlying issues that may have influenced the mixed results from the quantitative analysis.

Chapter 5 – Main Study (Study 2) Qualitative Triangulation Methods and Results

This chapter outlines the second part of the Main Study in this thesis that was conducted as a follow-up to the questionnaire as described in Chapter 4. This allowed for further probing of the recruits' responses to the different instructional methods by using interviews and observations to highlight the experiences and individual voices of the recruits. As such, the chapter is divided into four sections. The introduction (Section 5.1) highlights the specific research questions used for Study 2.2. The Methods section (Section 5.2) outlines the specific methods used for this part of Study 2, including information regarding participants and settings such as the approaches used for data analysis. The Results section (Section 5.3) presents the findings of the data analysis in conjunction to the specific research questions. Finally, the Discussion section (Section 5.4) reviews the implications of the findings in relation to those found in Chapter 4 to be used as a basis of discussion during Chapter 6.

5.1 Introduction

In Chapter 4, the analysis of Study 2's quantitative findings highlighted that there was a mixture of responses to either instructional method; PAR or non-PAR trained instructors. There was little parallel between pre and post questionnaire responses, making it difficult to know if PAR had any positive or negative impact on recruit training. As such, the findings required further study in order to gain deeper and more holistic insights and understandings as to why this may have occurred. The incorporation of a mixed method approach is frequently utilised to include a 'completeness' (Greene et al., 1989) and rigorous triangulation (Creswell & Plano Clark, 2011) to compounded topic areas. With that in mind, Chapter 5 covers a qualitative analysis of student reflections in regard to the training that they received via their respective instructor along with comments on observations that took place by the author. The goal of the second part of Study 2 was to create a bridge between Study 1 (Appendix 2) and the first part of Study 2 (Chapter 4) by establishing an insight into the link between the instructional design of Phase 1 training establishments, the instructional methodologies used by instructors and how the recruits responded to the different combinations.

As highlighted in Chapter 2, three constructs were selected to be used as measurable devices in order to compare the effectiveness of PAR and non-PAR methodologies; motivation, self-regulated learning (SRL) and reflection. Liddy (2010) suggested that in order to fulfil the qualities of an agile warrior, soldiers need to possess not only motivation for training, but motivation for individual learning and to also be able to reflect on what they have learnt in order to continuously, and autonomously, improve. As such, the ability to reflect (Hays & Gay, 2011), self-regulated learning (Duckworth et al, 2009) and motivation (Ryan & Deci, 2000) are the three areas that were selected to measure. Overall, the following research questions were addressed in this chapter:

RQ5: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on motivation?

RQ6: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on self-regulated learning?

RQ7: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on reflection?

The following section outlines the methods employed in the second part of the Main Study in order to address those research questions.

5.2 Methods

5.2.1 Setting and Participants

This part of the study used the information collated from the questionnaires as seen in Chapter 4. As such, the study was undertaken by selecting recruits from those who participated in the questionnaire i.e. recruits who were still in attendance at the end of their Phase 1 training programme at ATC Pirbright. The interviews were conducted within the education wing of Pirbright and with the permission of the Education Officer, the civil servant staff working in the education wing, and the interviewee's respective instructors.

5.2.2 Participant sampling

The study sample consisted of individuals who had participated in Phase 1 training. From that sample, volunteers were approached for interview. Along with this, in order to answer RQ 5-7 effectively the individuals interviewed must be from the same group as those that participated in the questionnaire as the sampling process relies on the positive or negative reactions from those recruits. As such, the interviewees were selected from recruits who completed their questionnaires fully ($n = 239$).

As described in Chapter 5, the platoons conducted their questionnaire during weeks 2 and 12 of their training programme. This left 2 weeks following their 'post' questionnaire in which to analyse the quantitative data based on the results of their questionnaire, identify appropriate individuals to interview, i.e. recruits who had the most positive and negative reactions to the questionnaire (see Chapter 4), and then return to Pirbright in order to conduct the interviews. Once recruits have completed their Phase 1 training they move on to their Phase 2 training with the Regiment that they have joined, for example any recruit joining the infantry would go to the Infantry Battle School based in Brecon, those joining the Staff & Personnel Support branch would move to Worthy Down Barracks in Winchester. Essentially once recruits leave Phase 1 it becomes impractical and unrealistic to conduct any follow-up data collection due to the geographical distance and also their availability due to varying nature of Phase 2 training.

The interviews were conducted during week 13 of the training programme, to ensure that the recruits were still available to participate in the study and were immersed in the same environment where they had engaged in Phase 1 training, thus increasing their ability to reflect on their training experience. At the same time, it was important to conduct the interviews and capture data prior to recruits completing their final assessments, since knowledge of the course outcome could potentially skew their perception of their experiences.

In line with Baker & Edwards (2011), we initially selected a sample size of 10 recruits as there was no clear definition of appropriate numbers that could be used for sample sizes. The numbers suggested by the 14 authors contained within the document ranged from 0-30; however, they had come to the conclusion that "it depends". This was true of the research conducted in this thesis as the data collection was partially driven by practicality. As such, there was not enough time in not only my

schedule, but also the instructors and recruits of ATC Pirbright to accommodate more than the minimum number of 10 interviewees that had been established as part of the findings from Chapter 4.

In conjunction with the research team, the questionnaire data was interrogated (see below) in order to identify interview candidates who fitted the selection criteria for interview. In order to maximise the difference in potential variation and individual perspectives of Phase 1 training, the differences between the pre and post scores for each of the key constructs were calculated for each recruit across all platoons used in the questionnaire. Those differences, positive or negative, were represented as the 'change' value within each key construct as shown in Table 5.1. This variable was used to highlight any differential in change from the pre questionnaire to the post.

Recruits with the greatest positive and negative differentials from each platoon were chosen for interview as shown in Table 5.1 to ensure a polarised opinion-set between the interviewees, thereby making differences simpler to detect during the analysis and coding. Those recruits who fitted the selection criteria were invited to be interviewed, with the interview procedure and consent process fully explained to each individual. The names in Table 5.1 are anonymous synonyms as set out in the data protection guidelines. These names serve as a reference point when discussing the data analysis.

Table 5.1 Study 2.2 Interviewee questionnaire results

Recruit	Name	Platoon	PAR Instructor	Gender	Education	Prior Experience	Change IGO	Change CLB	Change EGO	Change MSR	Change SELP	Change HA	Change Un	Change Rf	Change CR	Change CT	Total Diff
1	Lawrence	Lucknow	Yes	M	A-Levels	NA	-1	2.67	0.33	1.17	1.67	3.33	0	1.33	-0.5	1	-6
2	Luke	Lucknow	Yes	M	GCSE	Cadets	1.33	2.33	1.33	1.17	1.33	0.67	0.67	0.33	-0.5	0.5	9.16
3	Wade	Woods	No	M	A-Levels	Cadets	-1	2.67	-1	1.33	1.33	0	0	0.67	0.5	-1.5	-9
4	Warren	Woods	No	M	A-Levels	Cadets	1.67	2	0.33	0.4	-1	0.33	0	0.33	0	0	4.06
5	Dan	Dehli	No	M	GCSE	Cadets	4.33	1.33	4.67	1.83	3	0.33	0	0.33	2	2	19.16
6	Dylan	Dehli	No	M	Degree	NA	0.33	2.33	1.33	1.33	0.67	1.67	0	0.33	0.5	-0.5	5.33
7	Wanda	Waterloo	Yes	F	A-Levels	Mil Prep Course	0.67	-5	0	-3.2	1.67	-1	0.33	0.67	-1	0.5	-7.7
8	Wendy	Waterloo	Yes	F	A-Levels	NA	4.67	2.67	5	3.83	4	0.67	0	0.67	-0.5	4.5	25.51
9	Keith	Kajaki	No	M	GCSE	NA	1.33	2.33	1.33	-0.5	-2	-1	0.33	0.33	-0.5	-1	10.65
10	Kyle	Kajaki	No	M	GCSE	NA	0	2.33	0	1.9	0.33	0.33	0.67	1	0.5	0	5.72

The platoons that were used were split evenly in terms of having an instructor who was either PAR trained or not. Of the ten originally chosen, eight were male and two were female-only platoons, which is representative of the recruitment ratio within the British Army. However, only 8 in total were available for interview as Kajaki platoon had a last-minute timetable change. This reduction of

two interviewees did not affect the balance of PAR and non-PAR platoons and in fact created a more even balance of four recruits within each of the focus areas. Ideally there would have been 2 more female recruits representing the non-PAR area for further balance; however, this is representative of the reality of the recruiting and training timings when there are fewer female groups throughout the year.

Within the interviewed cohort, as indicated in Table 5.1 there was further balance represented by a variety of educational backgrounds; GCSEs, A-Levels and an Undergraduate Degree, and a mixture of prior military-related experience; no experience, Cadets and the Military Preparation Course (the Military Preparation Course is a 9-day course that includes within its curriculum: physical fitness training, drill, time-management and functional Maths & English lessons). Ages ranged from 17 – 31 with an average age of 21.83 years old. In summary, the sample of participant was an appropriate representation of the demographics of recruitment and training of recruits at ATC Pirbright.

As suggested by the theoretical framework in Chapter 2, the PAR methodology is based on a more student-centred, constructivist approach (Petty, 2009). As such, the interviews were designed to probe the key constructs investigated using the questionnaire to uncover evidence of increased motivation (Bartels et al., 2002) (RQ5), self-regulated learning (Zimmerman, 2008) (RQ6) and reflection (Jarvis, 2010) (RQ7). In order to ensure reliability, the questions were standardised for all recruits whether they were trained by a PAR or non-PAR instructor. Data was then combined with their respective individual questionnaire results that will be examined during the discussion section. Although it was not clear from the results of the questionnaire (Chapter 4) as to whether PAR has a significant, or any, impact of recruits' learning, the interviews provided a chance to uncover any further evidence of the recruits' mindsets.

5.2.3 Procedure

Recruits were invited to participate in an interview after an initial analysis of the quantitative data regarding recruits' reaction to Phase 1 training, based upon specific sampling strategies outlined in Section 4.2.2. Recruits were asked to volunteer in the interview through the Education Officer who liaised with the respective platoon instructor via email. The email included the study information sheet (found at Appendix 1); allowing recruits to make an informed decision about whether they would want to participate. All recruits invited agreed to be interviewed. Due to the constraints of their timetable, access was negotiated with permission through the Education Officer, Functional Skills teachers and platoon instructors to capture the interviewees either directly before or after the recruits' Functional Skills lessons. This allowed for a private room to be booked and used for the interviews in the Education Wing at Pirbright. However, this meant that interviews lasted only approximately 10-15 minutes as the recruits had to move onto their next training serial. This was so that the recruits did not miss any training, as outlined in the ethical procedure. Recruits received no credit or incentives for participation. There was a danger that being interviewed could stigmatise recruits as "high or low" performers within their platoons. Therefore, to avoid this form of stigmatisation, instructors were asked to inform platoons that interviewees were selected at random.

The research methods used for this study were piloted prior to any collection of data. The interview questions were piloted before being used with recruits. In total, three volunteers from the Defence Centre for Languages & Culture (DCLC) were invited to participate in a pilot interview. Following the interviews, each participant was asked a number of questions to confirm their understanding of the

questions that were used during the interview and if they had any constructive feedback for improving the interview content or technique.

Before starting the interview, participants were provided the information sheet to read and it was also verbally summarised; all willingly signed to indicate consent to proceed. Further permission was clarified by participants in regard to the use of an audio recording device in order to document the interview. This was verbally affirmed by participants before commencing the interviews. The confidentiality of all responses during the interview was reiterated and that only the interviewer was not affiliated with Pirbright or their training team and chain of command, thereby potentially mitigating potential power relations.

A rationale for the inclusion of qualitative data collection is described in Section 3.3.2. Throughout the studies, a semi-structured format was used as part of the interviewing technique along with questions designed to reflect the context of the research balanced with considerations from current literature (Lichtman, 2013). Table 5.2 outlines the interview schedule. The semi-structured format facilitated discussion of specific topic areas whilst concurrently providing a platform for unforeseen themes to emerge from the interviews. The flexible nature of the interviews was vital in order to gain a deeper insight into individual and personal experiences of recruit Phase 1 training, therefore as any emergent themes were key to creating a holistic picture from the recruits' perspective.

The open-ended design of the interview questions allowed the recruits to discuss aspects of Phase 1 that they deemed relevant to the specific military training environment that they found themselves in. For example, broad questions such as *'Some recruits might be like you in that they've enjoyed some parts but struggled with other parts. Do you have any thoughts or ideas as to why that might be the case?'* were included as opposed to focussing solely on specific negative experiences. This was consciously designed to negate biasing recruit opinions through leading questions. As such, the themes contained in Section 5.3 are representative of honest, emergent reflections brought forward from the recruits' subjective volitions.

The interviews began with a question intended as an 'ice breaker' (Table 5.2) to build rapport and establish trust. It was important to make sure each recruit was comfortable being interviewed by a higher-ranking officer, because of the nature of hierarchy and rank in the army and the danger that recruits give a 'preferred social response whether it is true or not' (Brink, 1989). The recruits may say what they perceive the officer wants to hear i.e. that there is no problem with any aspect of the training. To help negate this, the interviewer can take steps to build up rapport. Denzin (1989) suggests that the dress, etiquette and manner of the interviewer can largely overcome any potential bias and can help to put the respondent at ease. This is reinforced by Patton (1990) who similarly states that the quality of the information obtained during an interview is largely dependent on the interviewer. However, it is the reality of the working environment and this study that the researcher would be interviewing recruits whilst wearing military uniform with a Captain's rank slide.

Throughout the interviews the semi-structured nature was used to explore any emergent themes. The researcher asked participants questions related to the research topics but took the opportunity to react to what they were saying and explore any emergent opportunity. The questions are outlined in Table 5.2 and were always asked in the order demonstrated in the table. To conclude the interviews, recruits were asked to discuss any aspect that they felt might improve Phase 1 training overall.

Table 5.2 Study 2 semi-structured interview schedule

	Icebreaking
	<i>How's the course been so far?</i>
	<i>Any particular best or worst moment that you've had so far?</i>
RQ	Main study
Opener	<i>Some recruits might be like you in that they've enjoyed some parts but struggled with other parts. Do you have any thoughts or ideas as to why that might be the case?</i>
Prompt	<i>In regard to the instructors, how was their style of lesson delivery?</i>
RQ6	<i>Did you find that it was information from the instructors or did they get you to find out information yourself?</i>
RQ7	<i>Have you been able to reflect on the learning you've had throughout the course?</i>
Prompt	<i>Have the instructors done anything in particular that has helped you in your learning?</i>
Prompt	<i>If you had to describe the way they teach, how would you describe what they do?</i>
Prompt	<i>What lessons do you think you've learnt the most in?</i>
RQ5	<i>Do you think your motivation for learning has changed?</i>
RQ6	<i>Was the onus on you to learn rather than just receive the information?</i>
RQ5	<i>Do you think that your motivation has changed at all whilst being here?</i>
Prompt	<i>How have you found the way that they've taught lessons?</i>
RQ7	<i>Have you been able to reflect on the lessons you have during the day?</i>
RQ5	<i>Do you feel that your motivation has changed at all?</i>
	Wrap-up
	<i>Do you think that in this environment you are trying to be the best of yourself, the best you can be, or is it just more about survival and making sure you are better than a couple of other people?</i>
	<i>If you could change anything on the course to help improve learning what would that be?</i>
	Debrief and thank you for participation

Brink (1989) suggests that the research process must hold validity and reliability in order to attain credibility, which can be particularly challenging when the research is based on a semi-structured interview due to the inherent complexity of variables. Every step during the research process has the potential to influence the research output; therefore, it is crucial that each step seeks to increase the credibility of the results by avoiding as much error as possible (Brink, 1989). Regardless of the type of coding being used for the interviews, certain steps should be implemented to code information

reliably such as defining the coding categories, assigning code labels to the categories, and classifying relevant information into the categories (Gordon, 1992). This will aid in increasing the validity of the data analysis.

Prior to analysing the data, the respondents were categorised into four groups based off their scores from the questionnaire data analysis. The data was interrogated in order to find appropriate candidates to be interviewed for qualitative data collection. An average of the key construct scores was used to highlight any difference in change from the pre questionnaire to the post i.e. the effect Phase 1 training had on the individual recruit. Those highlighted with the greatest positive and negative differentials from each platoon were asked if they would volunteer for an interview. The idea was to render a more polarised opinion-set between the interviewees, thereby making any differences easier to detect during the coding analysis. Those identified and selected for interviews can be seen in Table 5.3.

Table 5.3 Selection filter for interviewees

PAR or Non PAR trained	Gender	Education	Average Diff between pre and post scores	Selected	Volunteer for Interview
PAR	M	A-Levels	-2.67	Yes	Yes
PAR	M	GCSE	2.33	Yes	Yes
Non PAR	M	A-Levels	-2.67	Yes	Yes
Non PAR	M	A-Levels	2	Yes	Yes
Non PAR	M	GCSE	3.67	Yes	Yes
Non PAR	M	Degree	-2.33	Yes	Yes
PAR	F	A-Levels	-5	Yes	Yes
PAR	F	Degree	2.67	Yes	Yes
Non PAR	M	GCSE	-2.33	Yes	Yes
Non PAR	M	GCSE	2.33	Yes	Yes

The results of the comparison lead to the creation of four separate groups:

- **Group 1.** PAR+: Positive growth under PAR instructor
- **Group 2.** Par-: Negative growth under PAR instructor
- **Group 3.** Non-Par+: Positive growth under Non-PAR instructor
- **Group 4.** Non-Par-: Negative growth under Non-Par instructor

These groups were used to segregate the responses by attributing any comments, positive or negative, to the originating group. This could be used to examining the affect that the two conditions had on the recruits. In order to sort the data and establish a comprehensive view there are various ways that the interview transcripts can be coded namely inductive, thematic or deductive methods (Fereday & Muir-Cochrane, 2006). As such, a combination of a deductive and inductive approach would be used to code the qualitative data, focussing on two areas: comments that were made that related directly to the research questions i.e. motivation, SRL and reflection (deductive); and secondly any other comments that were deemed relevant to learning, training, education and within or compared to Phase 1 training (inductive).

5.2.4 Data Analysis

In accordance with the protocols suggested by Braun & Clarke (2006), the qualitative data was analysed thematically. This facilitated any emergent themes that arose to be discussed to inform further understanding. Initially, the recorded interviews were transcribed digitally by the researcher in order to provide a degree of acquaintance of the data, after which multiple readings of the interview transcript were conducted.

As suggested by Mittelmeier (2017), a preliminary list of potential codes was produced during the second phase of analysis, referencing the relevant research questions and links to pertinent literature. Throughout this stage, extensive notes were created of themes or potential codes that could be used, with 10 draft codes being produced by the end of the stage. Those codes were reviewed and related to the research questions and data. With the draft codes in mind, the interviews were read again in order to critically review their application and relevance to the data, with the revised codes being increased to 14.

Following this, the researcher critically reviewed the codes for potential themes, and with an influence from relevant research (Petty, 2009; Nicholls, 1989; Heimlich & Horr, 2010) codes were arranged into three overarching themes: Learning, Motivational Climate and Predispositions. In conjunction with the themes, the transcripts were reread; however, this time critically reflecting on their validity. After this was completed, each theme and code were provided with explicit definitions, serving as a template for the coding process.

Concurrently, unmarked copies of the interview transcripts were sent to the supervisory team who were asked to complete their own independent analysis. This was conducted in order to increase the reliability of the coded themes by cross-referencing those that overlapped between the researcher's and the supervisors' opinions. The coding system was further revised following a comparison of notes between the supervisors and the researcher, synthesising a robust coding system that established a final 13 codes. A detailed analysis of responses relating to the individual codes was conducted during the final stage. This was conducted so that further insights into the narrative of recruit experiences relating to Phase 1 training could be gained. These data 'stories' were compared with their respective quantitative data so that subtleties could be identified in recruit experiences.

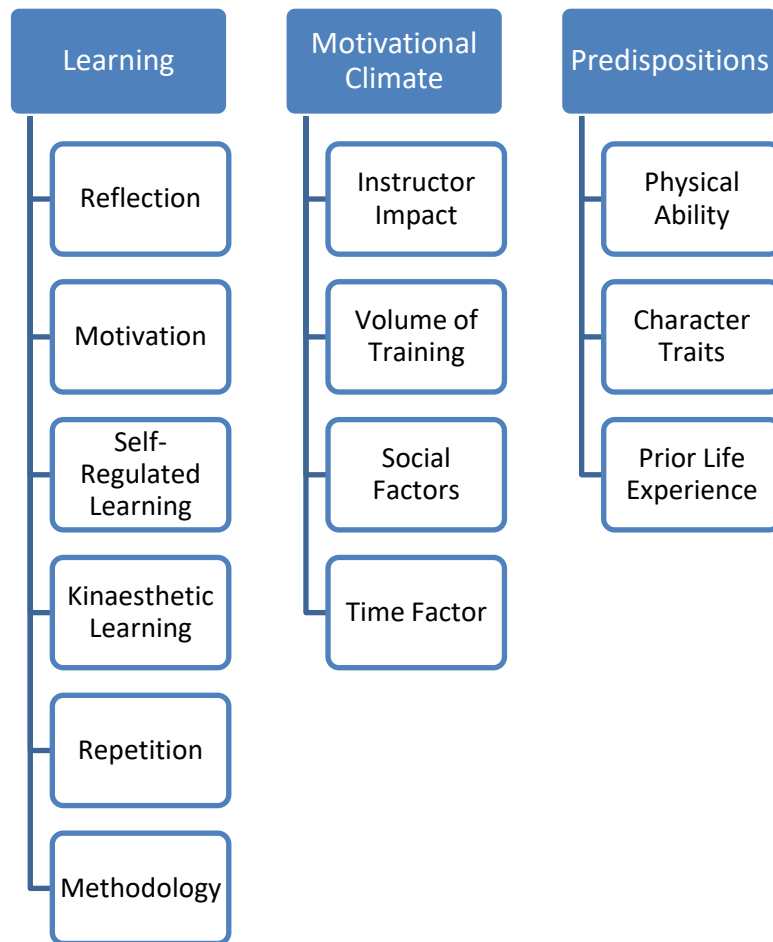
Along with this, the remainder of the chapter focuses explicitly on the key themes of 'motivation', 'reflection' and 'self-regulated learning' as they are most relevant to RQ5, RQ6 and RQ7.

Table 5.4 Summary and definition of interview codes

Code	Definition
Learning Elements	Codes related to forms of learning that took place or aspects that facilitated a learning environment during the recruits' course
Reflection	Statements related to the recruits' ability to reflect and their own reflective comments made during the interview
Motivation to learn	Statements related to the perceived change in recruits' motivation levels, such as <i>"if someone asked me to do something I'd do it straight away"</i>
Self-Regulated Learning	Statements about recruits' approach to learning
Kinaesthetic Learning	Statements referencing the hands-on nature of some of the lessons e.g. rifle drill
Repetition	Statements related to a specific teaching technique

Methodology	Statements about different types of teaching techniques recruits receive during the course
Motivational Climate (external factors)	Codes related to external aspects of the course beyond the control of the recruits' that affect their intrinsic tendencies
Instructor Impact	Statements that reflect the influence of the instructors on the recruits
Volume of Training	Statements referencing the perceived amount of lessons and evening work entailed within the course
Social Factors	Statements about the impact of social relationships between recruits and how a recruit feels regarding his/her own standing and of others
Time Factor	Statements relating to the amount of time recruits feel they have during the course or for specific tasks
Predispositions	Codes related to personal aspects separate from the programme that could facilitate success on the course
Physical Ability	Statements related to physical attributes such as fitness levels and injuries
Character Traits	Statements related to recruits' intangible characteristics, such as <i>"was more relaxed, I was getting by, I wasn't tense or upset with anything"</i>
Prior Life Experience	Statements about how prior life experience, e.g. school, work etc., influence success on the course

Figure 5.1 Visual representation of codes and themes for interview analysis



5.3 Results

In total, 150 codes were recorded from the eight interviews, whereby in total 6,883 words were expressed by participants. Table 5.3 displays a descriptive summary of codes in the learning, motivational climate and predisposition themes, with Table 5.4 demonstrating the weighting of each theme with its corresponding number of codes. This was useful in distinguishing the number of times specific codes were discussed by the recruits in relation to the research questions.

The learning theme was the most discussed by interview participants, comprising 46% of the coded units ($n=69$). Participants in Groups 1 and 3 contributed 30% ($n=21$) each to the sum total of the codes within the theme. Group 4 contributed 29% ($n=20$) of the sum total of the codes within the theme, and finally Group 2 contributed 13% ($n=9$) of the sum total of the codes within the theme. As such, non-PAR recruits more frequently discussed the methodology aspects of the training programme; whilst PAR recruits more frequently discussed areas related to motivation.

The motivational climate theme was the second most discussed by recruits, comprising of 35% of the total number of coded units ($n=53$). Group 2 contributed the majority of the coded units at 49% ($n=26$). Groups 3 and 4 contributed an equal amount of total codes from within the theme, comprising of 19% contribution each ($n=10$). Finally, Group 1 contributed 15% ($n=8$) of the total from within the theme. There were a few notable disparities across the Groups; PAR-trained recruits far

more frequently in regard to instructor impact whilst also discussing social and time factors more frequently than non-PAR recruits.

Finally, the predispositions theme contributed 19% ($n=28$) of the total number of coded units. Group 2 provided the most amount of contributions from the coded units within the theme with 36%. This was followed by Group 4 in which participants contributed 32% ($n=9$) and Group 1 with 25% ($n=7$). Group 3 participants contributed 11% ($n=3$) of the coded units from within the theme. The differentiation in totals across the groups were of a lower value than the other two themes; however notably PAR-trained recruits discussed character traits more frequently.

Whilst the areas highlighted in the themes above were initial observations from the data in regard to comparing PAR and non-PAR recruits, there were multiple layers that were explored. These layers included comparisons between not only PAR and non-PAR recruits, but also between recruits with positive and negative responses as seen in the quantitative data. The following sections will discuss the individual groups, common themes exploited from the whole data set along with PAR and non-PAR-specific themes.

Table 5.5 Number of codes by group

			Group 1 Group 2 Group 3 Group 4							
	Total	% of total codes	PAR	Non-PAR	Positive	Negative	PAR/Pos	PAR/Neg	Non-PAR/Pos	Non-PAR/Neg
Learning	69	46								
Reflection	15	22	6	9	10	5	4	2	6	3
Motivation	13	19	9	5	8	6	5	4	3	2
Self-Regulated Learning	7	10	2	5	2	5	1	1	1	4
Kinaesthetic	7	10	3	4	4	3	2	1	2	2
Repetition	5	7	2	5	5	2	2	0	3	2
Methodology	22	32	8	13	13	8	7	1	6	7
Motivational Climate	53	35								
Instructor Impact	22	42	16	6	7	7	4	12	3	3
Volume of Training	7	13	3	4	2	2	1	2	1	3
Social Factors	11	21	8	4	4	4	1	7	3	1
Time Factor	13	25	7	6	5	5	2	5	3	3
Predispositions	28	19								
Physical Ability	6	21	4	3	1	1	1	3	0	3
Character Traits	11	39	7	4	5	5	3	4	2	2
Prior Life Experience	11	39	6	5	4	4	3	3	1	4

5.3.1 Common emergent themes across all groups summary

This part of Study 2 set out to explore the effects of training from instructors' who used the PAR methodology compared to those instructors did not. Based on the literature review conducted in Chapter 2, those effects were focused in regard to the impact that instructors would have on motivation, self-regulated learning and reflection. These three aspects formed the basis of RQs 5-7. However as seen in figure 5.1 there were a number of other themes that emerged as a result of the semi-structured interviews. Whilst some of these themes overlapped with the research questions, for example instructor impact, others, such as physical ability, only emerged during the data analysis phase. A summary of common emergent themes that were coded can be seen in Table 5.5, these will be explored in detail in the following section.

Table 5.6 Common themes across all Groups

Theme	Summary of findings
Motivational Climate	Recruits suggested increased motivation in general and in regard to learning whilst on the course due to the fast-paced environment. The external circumstance of the course had an effect on their internal motivation, which had

	a positive effect on their learning e.g. one recruits suggested that university was more “laid back” but had more drive on the course. This lends itself more towards Ego and Task-orientated types, rather than a PAR vs Non-PAR difference.
Instructor Impact	The instructor can have a significant impact on the recruits’ experience, particularly in regard to motivation and learning. Some had negative views of instructors (negative correlations from the quantitative data) whilst others thought of them as “firm but fair”. Positive qualities included instructors who “would listen” and conducting 1:1 informal interviews with recruits to check progress. Shouting as motivation was suggested to have a negative impact on motivation.
Volume of information	Recruits suggested that there was a great deal of learning that is required. Time for reflection had mixed responses; some suggested there was time, others stated that any free time was taken up with chores e.g. making sure their locker was tidy and clothing was ironed. Recruits suggested that the learning aides were useful e.g. diaries, workbooks, but only when there was enough time to use them effectively.
Kinaesthetic learning	Nearly all recruits interviewed suggested that “hands-on”, practical lessons were the most effective. These were general lessons involving repetition e.g. rifle drill, which is a lesson that the PAR model would not be required for but ideal for the DIT (non-PAR) style of instruction. This suggests that instruction rather than teaching is sufficient for Phase 1 training.
Physical Ability	Those that mentioned either being physically fit prior to starting the course or those who enjoyed the physical aspect of the programme had a more positive narrative.
Prior life experience	Whilst the quantitative data specifically focussed on prior military experience (e.g. cadets, university officer training etc.) the recruits commonly referred to what they had done prior to starting the course. This can be linked to their cognitive ability i.e. whether they went to school/university recently correlating with a more positive narrative.
Reflection ability	In line with one of the affective principles of PAR, some recruits demonstrated in-depth reflections, while others were not as reflective. This highlights the underlying complexities of adapting PAR to the Phase 1 programme due to the mixture of responses in this regard.

Whilst Table 5.5 highlighted the common themes across all responses, the main aim of this thesis was to gather evidence regarding the effectiveness of the PAR methodology on recruits at Phase 1 training. As such, the common themes were further investigated to separate the specific responses from either recruits whose instructors were trained in the PAR methodology or those whose were not. A summary of findings can be found in Table 5.6.

Table 5.7 PAR and non-PAR summary of findings based on the common themes

PAR-specific themes	
Predispositions	It was suggested by recruits that confidence is a key attribute to completing the training. This was further developed by another recruit stating if you “start strong, you tend to stay one of the stronger ones”. Also having recently spent time in similarly disciplined environments such as school or university makes it easier for those recruits to adjust to the busy regime.
Learning	Learning was deemed more effective when broken down by recruits; however conversely one of the female recruits suggested that she found it easier to learn the whole piece (in this case a particular drill movement) rather than be broken down. There was potentially evidence that PAR was not used effectively as it was stated that instructors “can’t really teach people if it’s just theory”, suggesting that there might be constraints to use PAR effectively such as the standardised Instructional Specification for that lesson. Recruits could have increased their willingness to learn as it’s their immediate career, potentially superseding any instructional delivery style.
Motivation	There was evidence of ego-orientated traits, as the recruits wanted to “be better than the next person, no doubt”. This makes it difficult to ascertain the degree of effectiveness PAR has, or if these are predisposed character traits.
Instructor impact	Some recruits reported feeling demotivated by the way certain instructors spoke to them. One suggestion for improving the course was for the instructors to “talk to them like human beings”, suggesting a negative connotation if they were shouting etc. One recruit felt he had to lie about being injured to avoid ridicule from his instructors; however, he did note this was the minority. Others had positive relations with instructors who were ‘praising’, ‘attentive’ and ‘would always make time to listen to the recruits’.
Non-PAR-specific themes	
Learning	The DIT-style (non-PAR) was effective when using repetition for learning e.g. rifle drill. Recruits grew accustomed to the style of instruction despite educational backgrounds. Lessons using mostly PowerPoint presentations were not seen as being conducive to learning, particularly as the recruits were tired “90% of the time” from other training. Information came mostly from instructors rather than student-centric; this falls in line with the DIT style, suggesting that PAR may not be necessary for these types of lessons delivered in Phase 1 training.
Motivation	Some recruits suggested external factors for motivation such as the pressure of the course and the fear of getting into trouble. There was some evidence of Self-Regulated Learning when one recruit referred to looking back over notes from lessons afterwards; however, this should ideally have been encouraged from a PAR-instructor, suggesting that it would be better utilised in a more conducive learning environment (but that recruit had also been to university and was used to doing things “off your own back”).
Predispositions	Recruits suggested that it was helpful when adapting to the demands of the course if you were used to being away from home, which could provide an improved receptiveness to PAR training. Similarly to the PAR-specific theme, those who were already self-proclaimed motivated people generally stayed motivated throughout, suggesting that the instructional style had little effect on them (however this might have been different if they had a PAR-instructor for their training).

Tables 5.5 and 5.6 highlight the common and specific PAR and non-PAR themes that emerged across all of the Groups that were formulated as part of the coding process. However, research questions 5-7 focussed specifically on the effect that PAR had on motivation, self-regulated learning and reflective practice.

5.3.2 RQ 5 – Impact of PAR on Motivation

Group 1

One of the factors that most recruits did find had improved over the programme was in their motivation levels, both in general and in relation to their learning. However, the data highlights that increased motivation may be extrinsic, triggered by external sources e.g. instructors, climate, rather than through intrinsic motivation i.e. from PAR instruction.

‘It’s changed a lot since school, just being here, I’ve just sort of got my head down and got on with it. At school I didn’t really pay attention, stuff like that. Obviously now this could be my career so trying to do what I can.’

(Luke, male, PAR+, GSCE, Cadets)

This group of recruits found that either their motivation or sense of urgency had increased whilst on the course or that it had maintained a steady level for those that consider their motivation levels to be relatively high. This self-perceived higher level of motivation could be due to other factors which relate as the characteristics of recruits that come across as ‘stronger’ to the other recruits and that have a more positive experience of the training programme.

‘If you come in strong you tend to stay one of the stronger ones, so you tend to want to be one of the better ones. Some of the people that came in and you thought were one of the better ones are still the ones who are going for best recruit.’

(Wanda, female, PAR+, A-Levels, Mil Prep Course)

‘Yea massively, for everything. Back at home if someone told me to do something then I’d put it off for a while but even on the weekend it showed, if someone asked me to do something I’d do it straight away.’

(Luke, male, PAR+, GSCE, Cadets)

The recruits in this group noticed that if you had a recently come from a structured, social environment then these could be factors attributed in being successful on the course. For example, Wanda noted that girls who had started the course soon after leaving school were more inclined to adapt to becoming ‘more motivated’. This is potentially due to the similar institutional structures of both basic training and the school timetable. She goes on to suggest that those that recently left university have an even greater affinity in transferring their motivation to the Phase 1 environment.

‘I’m probably about the same, but I think a lot of girls are now more motivated to get things done straight away, rather than thinking “I don’t have to do that tonight” or “I’ll leave that ‘til Sunday night”. Some of the girls who have come

straight from school are better at doing it. But I think me and a couple of other girls who have come straight from [university] will get it done as soon as it's in.'

(Wanda, female, PAR+, A-Levels, Mil Prep Course)

Similarly, Luke suggested that his background as a sports coach provided a solid foundation for the physical training aspects of the course. Fitness is a key aspect of the course, which was reflected in the physical code occurring six times during the interviews, contributing 21% of the total occurrences, with recruits having to complete various fitness tests in order to successfully pass the course. The confidence he describes potentially comes from an increase in motivation due to not having to attribute worry or be concerned regarding this fundamental aspect of the course.

'I think with basic training it's more of a confidence thing...PT [physical training] I'm comfortable with; outside of here I started as a sports coach.'

(Luke, male, PAR+, GSCE, Cadets)

Having already noted how recruits' backgrounds could affect their motivation levels, Wanda goes on to describe how some recruits react in different ways to the environment. She describes an almost 'fight or flight' reaction as whilst some recruits want to be the best and perform well, others merely want to 'survive'. Perhaps those that want to simply get through the programme have reflected more and realised that it is a means to an end, that they joined the army for a specific job and that 'army life' is not replicated by Phase 1 training. However, she suggests that those who arrive with no expectations take to the training and learning better.

'I think it depends on the person a lot. So for one of the girls it was literally about survival for her, she just wanted to get through, and some of girls are like that and think "just get through this and I'll be at my next posting". But I think some of the people who came here and are trying to be the best and since they've come here are not expecting much they have really grasped it a lot more.'

(Wanda, female, PAR+, A-Levels, Mil Prep Course)

Group 1 recruits refer to their own intrinsic motivation, supporting the theory that a PAR-approach to training helps to facilitate an internal increase in motivation. However, this is diluted by the extrinsic motivators such as attributing motivation levels to being immersed in similar environments such as schools or universities, and that recruits' own motives on the course may affect their motivation levels.

Group 2

As with Group 1, recruits in Group 2 also described some increases in their motivation whilst on the programme.

'I don't like a messy room now, put it that way! Before I was in basic training I could leave stuff for days without doing anything about it.'

(Wendy, female, PAR-, A-Levels, No Experience)

Also, there was evidence that links the recruits' increased motivational states with the environment that they are in. Wendy describes this as a competitive element of the course, forcing recruits to strive to be better than the others, potentially for reasons of personal pride as an intrinsic motivator.

'But you always want to better yourself in this place because you've got so many people after the same thing, it just motivates you. It is nice to better yourself and everybody motivates you to better yourself, but you do want to be better than the next person there's no denying that. I think it's a good thing to have a bit of competition.'

(Wendy, female, PAR-, A-Levels, No experience)

The recruits in Group 2 had also undergone training with a PAR-trained instructor as Group 1 had, but whilst there were positive comments, what became apparent between the two Groups were the converse narratives. Group 2 recruits generally had a more negative narrative in terms of how their motivation had been decreased during their training programme. Lawrence and Wendy describe the negative reactions they have to some of the instructor approaches, specifically in regard to shouting and being shouted at.

'Speak to me like a human being. That will at least give someone a positive so they can think "I'll try my best next time" instead of being shouted at, because it goes down and down.'

(Lawrence, male, PAR-, A-Levels, No experience)

'Most of them are OK but you get these ones that, obviously I know that they try and shout at you to motivate you but it can have the opposite effect on somebody else. When someone's shouting at me I get really offended. It lowers my confidence completely. I had this a few days ago when they were saying "you might as well hand in your DOR [Drop out On Request] because you're not going to pass your TAB". I just have that stuck in my mind and I feel that has contributed to me failing today.'

(Wendy, female, PAR-, A-Levels, No experience)

The traditional stereotype of an army instructor is one of a loud, brash manner that cares little about what you think, as long as you do as you're told. Whilst this might still exist to an extent in the majority of Phase 1 training and wider, the British Army in particular has been moving away from this stereotype by investing in coaching culture; one of the reasons for investigating the PAR methodology as discussed in Chapter 2 of this thesis.

Clearly the impact of the instructor can be seen in both Group 1 and 2. However, what was also interesting to read was the difference in motivational attribution. When discussing motivation, recruits in Group 2 tended to attribute their individual levels to instructor impact as opposed to their own internal gauge. Notably, Lawrence was in the same platoon as Luke from Group 1 who had a very positive narrative in comparison. This underlines the complexity both of PAR as an instructional methodology and measuring the impact of it within a context of many variables. However, this proves a degree of consistency between the quantitative findings and the interviews.

Further to this, a dichotomy emerged between how recruits responded in regard to intrinsic and extrinsic motivation. As mentioned, Luke described his experiences of some of his instructors as shouting at him and in turn perceived it in a negative way. However, Wendy, who also described the external motivations of her instructors as shouting, seemed to use the negative external motivation into intrinsic determination that motivated her. To the same external motivations, Wendy responded with internal resilience, whilst Luke felt a much more negative effect, manifesting in his more negative narrative.

This was further complicated as Wendy, who previously mentioned how instructors can have a negative effect on her motivation level, also described another instructor who provides essentially the opposite effect. She describes the characteristics of the 'positive' instructor as attentive, praising and willing to listen. This highlights the importance not simply of the instructional methodology used, but the characteristics of instructors themselves.

'Really encouraging yea. My section commander's the best, I wouldn't want to change her. She's really attentive and she's always praising us for things; she'll give us the disappointed mum speech if we do something wrong but she's always really nice and if you have any questions she'll always make time for you, whether she's busy or not, she'll talk on the move. She'll still listen to you.'

(Wendy, female, PAR, negative response, Group 2)

The recruits of Group 2 tended to attribute their behaviour externally, in this case more aimed towards the instructors' approaches, both positive and negative. This externalisation is described in Heider's (1958) Attribution theory; more specifically the recruits are placing the control of their motivation levels onto the stable, external variable of the instructors. Although there is evidence to suggest that PAR has an impact on motivation, equally there is evidence to the contrary, as described earlier in regard to the responses by Luke and Wendy. And whilst there is a consistency in the inconsistency of both the quantitative results and the interview narratives, it only further highlights the complexities of PAR.

Group 3

The recruits in Group 3 were not trained by a PAR-trained instructor but they did display a positive response to the survey in Chapter 5. Overall, the recruits in this group had a lower count in regard to the motivation coding tag. However, they do state that their motivations either increased or were sustained during the course. This suggests that there were other factors that helped to increase or sustain their motivation as they did not have a PAR instructor to teach them.

'I've never struggled to motivate myself so it's probably stayed the same I reckon'

(Warren, male, non-PAR+, A-Levels, Cadets)

'If anything, I think it's grown more. Before I came here I was excited to crack on and get on with it and the more I've enjoyed it the more my motivation has gone up.'

(Dan, male, non-PAR+, GCSEs, Cadets)

Similarly to some of the other recruits, Dan compared his time on the programme to his previous life before joining the army. This supports the previous comments from other groups that the environment of Phase 1 training can facilitate an increased level of motivation in a person, and not necessarily due to a method of instruction.

'It means I always want to excel at everything and do the best I can so I'm always putting in 100% effort, whilst I was in civvie street [a civilian] I always thought "I can't be arsed" or something like that. Now I'm always thinking to get things done.'

(Dan, male, non-PAR+, GCSEs, Cadets)

Group 4

Recruits in Group 4 had neither a PAR instructor nor a positive response to the survey. It was interesting to note that both of the non-PAR groups spoke about motivation as much as the PAR group; potentially a link to reflective abilities, which in theory should be increased through use of PAR as an instructional tool. What they did say in this group reflects sentiments from the other groups. Speaking of the impact of military environment, Wade suggests that it is this that helps to increase motivation levels in recruits:

'Definitely. It makes you more disciplined, it makes you pay attention.'

(Wade, non-PAR-, A-Levels, Cadets)

Dylan attributes his external motivators such as time management and fitness. When seeing the course through the eyes of a recruit, the thought of obtaining some breathing space through being organised so as not to draw the attention of the instructors or to be able to reflect and not rushing to iron your clothes would be a very motivating factor. Being physically fit is again seen as a beneficial factor in regard to being successful on the course.

'It comes down to how people cope with time management. If people can crack on and get their admin down and get what they need squared away then I think they've got a bit more time to relax and they find things easier...Same if you have a good level of fitness it just makes life easier for yourself.'

(Dylan, male, non-PAR-, Degree, No experience)

Summary

On balance, the statements across these groups do not give a significant indication of the effectiveness of the PAR methodology on motivation levels. It does on the other hand help to explain issues and reasons behind the mixed results. They are recruits doing what they can to get through an arduous course. As most would be able to sympathise with, your last concern is whether or not the instructors used a certain teaching methodology, as it is very unlikely that you would know the difference if they had done it another way, particularly considering the recruits' backgrounds and stage of training. There was, however, evidence of a larger motivation primer, that of the environment itself. This will be explored within the Discussion section of this thesis.

5.3.3 RQ 6 - Impact of PAR on Self-Regulated Learning

Group 1

The recruits in Group 1 commented on the degree to which their previous backgrounds and other motivating factors helped with their ability to self-regulate their own learning. Wanda suggests that having experienced the academic rigours of university, this in turn helped her to not be prompted to continue to study during the training programme. She attributes this to the similar discipline and structure of the two learning environments.

'Whereas I came straight from uni so I was used to being disciplined in working things out for myself.'

(Wanda, female, PAR+, A-Levels, Mil prep course)

As part of Phase 1 training, recruits are given a diary in which they must make weekly entries describing how they are feeling about their training. These diaries are read by their respective instructors to gain an insight into any issues the recruits might be having. This is an element that has to be completed as part of the programme, suggesting that there should be an impetus by recruits to self-regulate this part of their learning. However, Wanda describes that her instructor has to frequently remind her platoon to complete the diary entries or there would be consequences.

'Erm, I mean my section commander does keep reminding us to fill in the diary cause he has to look at everyone's every week, so if you don't fill it in you'll get in trouble.'

(Wanda, female, PAR+, A-Levels, Mil prep course)

This suggests that, although the instructor is PAR-trained, there is a lack of SRL increase due to the frequent prompting to the platoon, which goes against the theory. There is also the fear factor of receiving punishment for not completing the diaries. This alone should potentially be enough external motivation to increase SRL; however, there could be other factors affecting the recruits' opportunity to complete them such as the time to do so. This would impede any potential increase in SRL.

Group 2

Recruits in Group 2 provided very little evidence regarding SRL in their narratives. However, Wendy does suggest that there was an increase in the desire to learn as quickly as possible, suggesting that there is a certain urgency which could be perceived as an increase in SRL. This would support the notion that PAR increases the SRL ability of recruits.

'Yea I'd say so. You try and do things as quick as possible here.'

(Wendy, female, PAR-, A-Levels, No experience)

Group 3

As mentioned previously, physical training plays an integral role within the Phase 1 training programme. PT is progressive but demanding, adding to an already busy timetable as PT sessions are placed around other lessons. Whilst improving fitness is important, it does not necessarily become a

very conducive ingredient when recruits are also trying to take in new information or finding the energy to continue studying in their own time. That said, reflection could be deemed a form of SRL as the awareness of the act of reflecting could arguably a form of SRL in its own right.

'Yea, generally sometimes, I mean a lot of the days are quite long and physically exhausting so it's good to just be able to sit down, reflect, and think about what you've done. So it's been quite a good way to reflect.'

(Dan, male, non-PAR+, GCSEs, Cadets)

Group 4

As mentioned in Group 2, recruits may not have ample opportunity to be able to effectively attempt to increase the SRL ability. Wade suggests that this could be due to having other priorities such as making sure the recruit's locker is clean; however once, or rather *if*, those priorities are complete then time can be set aside for personal learning.

'I think that's due to the fact that, for example when your locker's sorted and you keep it sorted you've got more time to learn.'

(Wade, male, non-PAR-, A-Levels, Cadets)

Dylan describes in more detail his own experiences of learning on the programme compared to having previously attending university. He suggests that there is time in the programme, albeit during evenings and at the weekend, to revise what they have been taught and to take ownership of their learning.

'I suppose we do usually on the weekends and occasionally in the evenings we'll have the chance to look over notes, off of our own backs sort of thing.'

(Dylan, male, non-PAR-, Degree, No experience)

As his instructor was not trained in PAR, this would denote that recruits can still increase their SRL ability. However, his academic background could potential override this as he knows what it means to learn and has had to motivate himself to get work done in that previous environment. This could also be a sign of maturity, but again he may be drawing on his previous experience in order to get the work done. He does go on to suggest that the Phase 1 environment helps to accelerate recruits' motivation to learn as it is a necessity of the course.

'Yea I would say so. Coming from university where things are more laid back it takes you a while longer to crack on and get things done whilst here you don't really have an excuse not to.'

(Dylan, male, non-PAR-, Degree, No experience)

'I think the learning here is much better because university is a bit more off your own back, I think I work better under pressure and under that slight element of fear. Whereas university there's none of that, so for me personally it makes me learn better.'

(Dylan, male, non-PAR-, Degree, No experience)

Summary

Recruits contributed fewer SRL-related codes when compared to motivation and reflection. This could be due to confusion between being motivated in general and having the motivation to learn. There could also have been confusion about what 'learning' was. Learning was observed to some extent in changes in behaviour, practice, feelings and thinking; however not all of these changes might have been recognised by the recruits as 'learning' per se.

The recruits suggest that they have an unofficial prioritisation of tasks, potentially set in terms of what needs to be completed sooner or the consequences for not completing a task. It is clear though that at the bottom of the list is continuing to learn during the non-timetabled parts of the programme. This could be due to lack of time or being exhausted from the demands of the programme. This makes it difficult to ascertain as to how much impact PAR had on increasing SRL levels in recruit, which in turn also reflects the mixed quantitative results.

5.3.4 RQ 7 - Impact of PAR on Reflection

Group 1

The third research question this section aims to address is the impact of PAR on the ability to reflect. As has been mentioned in previous parts of this section, recruits identified certain factors that can affect their motivation and learning such as lack of time and tiredness. Also, as mentioned previously, in order to aid recruits to reflect they are required to complete weekly diary entries that their instructor reads.

'Everyone has to complete a Monday – Saturday diary and at the end of it you need to put a weekly reflection. At the back of it there's a section that asks specific questions, for example SDW, Phase 2 visits, what you did on long weekends, things like that.'

(Dan, male, non-PAR+, GCSEs, Cadets)

Recruits in Group 1 suggest that the diaries can be a useful tool when looking back over those entries to remind them of what they had covered up to that point.

'The diaries are quite useful for making you think about what you've done in the day. Sometimes people forget what they've done so the diaries are useful for that.'

(Wanda, female, PAR+, A-Levels, Mil prep course)

However, there were conflicting comments as to how much time recruits have available to reflect on their training during the programme. When asked about what he would change on the programme, Luke stated that he would allocate more 'you time', which would facilitate the conditions necessary to reflect effectively. Wanda confirms the lack of time, but also suggests that it is very much dependent on what they have done that day will denote how much time there is for reflection.

'I think more 'you time', obviously some days have been horrible and some days have been good and that, but then you do your ironing you do your admin. So having 'you time' to chill out after that would be great.'

(Luke, male, PAR+, GCESs, Cadets)

'Generally yes, some days no; some days we're busier than others but there is time in the week to sort yourself out.'

(Wanda, female, PAR+, A-Levels, Mil prep course)

Group 2

Chapter 4 highlighted that the Phase 1 training programme, i.e. via the training design, is time-demanding with a large volume of information for recruits to assimilate. Lawrence stated that the way he experienced learning during Phase 1 was exclusively instructor-led, with information being communicated from instructor to recruit with limited dialogue. He noted that recruits need different amounts of time to learn the information presented, suggesting that some recruits learn the information and can then reflect whereas others take so long to learn they have no time to reflect.

'All I can say is I've learnt a few things but the way the Army does learning is, let's say, the information is thrown at you. I feel that for some people it takes some time to sink in and to get the information.'

(Lawrence, male, PAR-, A-Levels, No experience)

However, although Lawrence agreed with some of the time-related comments from Group 1, he strongly suggests that there is no time at any stage of the programme to learn the information. Tasks such as ironing and checking kit are prioritised as they have to be completed by recruits so they are ready for the following day as they would receive corrective punishments if they did not.

'There's not enough time to learn anything in the evenings, there's no time to learn at all. And that's another thing that happened when we went to a lesson we were told we had time the previous night to do this, but you don't have enough time at all to be honest. Then in the evening they say it's your own time but then you have to do laundry, you have to iron, you need to do your kit, wash all your webbing, all that stuff.'

(Lawrence, male, PAR-, A-Levels, No experience)

Wendy agreed that there is not enough time on the course to effectively learn the information. The daily mental and physical demands of Phase 1 can be very tiring, as expressed by some of the recruits. In a similar narrative to previous comments, she suggests that tiredness is not conducive to effective learning; however, she does not comment on how much time she may or may not have felt she had in the evenings to reflect on this amount of information.

'Not enough time. If we're tired, which 90% of the time we are, if we're getting so much information fed to us then it usually goes in one ear and out the other and then we get a test on it, you think you haven't done it but obviously you have. It's like you're not taking in some of the information. Like our maps, we had loads of lessons on maps but then we didn't have any for 3 weeks then we had a test when we were at SDW and I completely flapped. I was thinking "what do these words mean?!"'

(Wendy, female, PAR-, A-Levels, No experience)

However, it is important to highlight that at the start of their training programme, recruits are provided a syllabus booklet to support their learning. This is commonly referred to as the 'workbook'. Lawrence recognised that, whilst he suggested there was little time during the course to learn effectively, he in fact may struggle with learning in general.

'I feel that the military syllabus, even though it was given to me in a booklet, I reckon I could learn it and do well on it, but at the minute I struggle.'

(Lawrence, male, PAR-, A-Levels, No experience)

Group 3

Warren concurs with previous comments regarding how their information processing can be impeded by tiredness from the programme.

'It's hard 'cause you're tired half the time so you've got to stay awake and there's a lot of information to take in with some of them.'

(Warren, non-PAR+, A-Levels, Cadets)

When asked whether he had enough time to reflect during the programme, Warren suggests that sleep is another factor that takes priority when all of the necessary tasks are completed. During Phase 1 and other military training, sleep deprivation can be a common occurrence. This sleep deprivation is used to teach recruits to grow used to the feeling and to be able to still carry out tasks when extremely tired. However, in regard to learning, sufficient sleep is regarded as "essential" (Curcio, Ferrara & Gennaro, 2006), creating a conflict between effective learning and military training. Recruits would also be less accustomed to the lack of sleep they would perhaps have normally received prior to joining the army. He goes on to mention that, whilst he is aware of the workbooks, they are a lower priority than completing the other tasks such as rifle cleaning and therefore does not place a great deal of importance on them.

'Not particularly no because as soon as you get back to the block [accommodation] you're straight into doing admin and after that it's almost straight to bed. You've got to keep on top of your sleep. You do have workbooks, they're everything we learn. When you're not cleaning your rifle or doing admin you can use that and fill in the missing word or something.'

(Warren, non-PAR+, A-Levels, Cadets)

Dan agrees that the training can be arduous and physically and mentally draining. He does suggest that, not only did he find time on the course to be able to reflect; he emphasises the importance of this time to have the chance to process not only the learning but his own thoughts.

'Yea I believe so, sometimes people in the troop might mess up and we lose time that way but we get enough time generally in the evenings after scoff [dinner] to do ironing or diaries or prep for the next day there's usually enough time.'

'A lot of the days are quite long and physically exhausting so it's good to just be able to sit down, reflect, and think about what you've done. So it's been quite a good way to reflect.'

(Dan, non-PAR+, GCSEs, Cadets)

Dan also advocates the use of the diaries as useful facilitative tool that helps in directing his reflective thoughts.

'It's the Section Commanders [who read the diaries] and they'll sign it and tell us how we got on during the week so it's a good bit of reflection.'

(Dan, non-PAR+, GCSEs, Cadets)

Group 4

Recruits in Group 4 agree with the inconsistency of time available to them to reflect on their learning. Wade also states that there is a degree of personal responsibility in being organised enough to manage your administration in order to free up the necessary time as opposed to having the time allocated to you by the programme.

'Each week varies; some weeks yes but some weeks no. You can get back from scoff [dinner] and you'll still be doing stuff til quite late so I think it varies on a week to week basis on how much time we get.'

(Dylan, non-PAR-, Degree, No experience)

'The first few weeks no. But as the time went on you get a lot more time to sit down and reflect on what you've got to do. I think that's due to the fact that, for example when your locker's sorted and you keep it sorted you've got more time to learn.'

(Wade, non-PAR-, A-Levels, Cadets)

Dylan also highlights that the effectiveness of the diaries is potentially hampered by the exhausting nature of the course.

'I suppose it does help you to reflect on what you've done but probably not to the extent that it was designed for because at night you're just ready to go to sleep.'

(Dylan, non-PAR-, Degree, No experience)

Summary

Most recruits stated that there was a lack of time to reflect on what had been done during the day or that, if there was time, other things would take priority such as cleaning, ironing and getting kit ready for the next day. This would suggest that the environment was impeding the recruits' ability to develop as reflective practitioners, specifically citing the limited effectiveness of the resources such as the diaries.

Those who had negative responses generally suggested that there was no time in the programme at all to reflect, whilst those who responded positively suggested there was time, but that it was inconsistent and required recruits to be organised to free up that time – placing blame on external

factors (the course itself) instead of taking responsibility and ownership of their time, which is one of the main intangible purposes of Phase 1 training.

Whilst the majority of recruits agreed that the diaries and workbooks were useful to an extent, this was restricted by the time available to use them. One recommendation following this point would be to ensure that there is allotted time during the course for reflective practice. However, the reality is that recruits would potentially use that ring-fenced time to catch up on the aforementioned administrative tasks such as cleaning, or indeed sleep, rather than reflect. This suggests that in order to be researched more thoroughly, PAR should be delivered in an environment with less time pressure, such as Phase 3 training.

Types of reflection

During the analysis of the qualitative data, it became apparent that there were two distinct types of reflection contained within the narratives. One type, as seen in the evidence for RQ7 in the previous section, related to the specific act of reflecting. The other type was the overarching nature of each recruit's narrative; how they opened up and discussed all of the topics in a frank and honest manner. The recruits discussed some deep and personal reflections during the interviews, which was rather surprising despite not only having just met me for the first time, but also because of the rank factor in that they may have only said what they thought I would want them to say i.e. probably more positive narratives suggesting everything was going very well for them. However, fortunately they were very open and honest, which in turn meant providing a more valid data set.

'But in my previous troop I'd say that I didn't have any problems at all. I was more relaxed, I was getting by, I wasn't tense or upset with anything but with this, I feel like I'm gonna have moments where I'm really going to break down. But I seem to manage to get by. I had no issues with the previous troop.'

(Lawrence, PAR, negative response, Group 2)

'Like I say I've got a wife and kids at home and if I've had a bad experience for example if I've done something wrong, I go into my head and start thinking about them, so that makes it a bit of a downward spiral.'

(Wade, non-PAR, negative response, Group 4)

'And that was an emotional rollercoaster; I wanted to go home every other day. Didn't though and I'm still here!'

(Wendy, PAR, negative response, Group 2)

Instructor use of PAR

One very important aspect to highlight is the extent of the use of PAR by instructors who had successfully completed the DTTTv2 course. This thesis makes the assumption that qualified instructors use the PAR methodology fully in their lessons. However, this may not be possible due to the standardisation of lessons and restricted and compact timetable, as noted in the Pilot Study of this thesis. The instructors cannot be expected to deliver a lesson using PAR to its full potential if such restrictions are placed on them by the programme.

Whilst the instructors were not formally interviewed for Study 2, the author spoke with each instructor whilst their platoon was conducting the surveys in an attempt to gather anecdotal evidence from their perspective. In general, the instructors who were PAR qualified all understood and appreciated the ideology of the student-centric approach, agreeing on its benefits and that they would employ those techniques when given the choice, or opportunity.

However, they concur with the finding of Study 1 in that there was no flexibility in the programme to extend the lessons even if they wished to. Also, that the specific lessons that are taught on the programme do not necessarily lend themselves to the design of PAR; there are only certain ways of instructing how to march and how to take a compass bearing. This bolsters an argument for transferring the use of PAR into an environment that is more suitable for its potential.

Additionally, observations were made on 3 instructors at random. Permission was sought through the Chain of Command and conducted in conjunction with the Quality Assurance cell at ATC Pirbright. This cell conducts regular observations of all instructors posted to Pirbright and is not required to notify the instructor in advance that they will be receiving an observation. Those observations related with the anecdotal evidence in that there were *some* elements of the lesson that could be attributed to PAR, for example there were multiple 'reviews' that were used as summaries throughout 2 of the observations. However, overall, they were very similar to non-PAR lessons as they all followed the standardised instructional specification (lesson plan) that is provided for instructors. A follow-up study to this thesis would be to examine the extent that PAR is employed in lessons in more detail.

5.4 Study 2 Discussion

5.4.1 Implications of findings

In this chapter, the second part of Study 2 considered the impact that PAR might have on recruits' motivation, self-regulated learning and ability to reflect. Those results and the implications were summarised within each sub section as addressed by research questions 5-7. This section will examine the wider implications of those suggestions that were raised by the recruits under main sub headings of learning, instructor impact and the training environment. These headings were coded during the data analysis phase as described in section 5.2.4 of this thesis.

Learning

The recruits' learning is the centrepiece of this research. The interviews showed that nearly all of the recruits preferred the kinaesthetic, 'hands-on' sessions such as rifle drill with a few commenting on behalf of their respective platoons to the same degree. This could potentially be due to kinaesthetic learning being conducive to the majority of the recruits' individual learning style, or they could perceive rifle drill to be more relevant to their future roles as soldiers, therefore their motivation to learn is greater.

Contrastingly, they also commented about the use of PowerPoint-central lessons and their ineffectiveness for learning. For example, Battlefield Casualty Drills (BCD), a lesson that instructs on the principles of first aid in a combat situation, is only taught in theory; however, recruits suggested it would be difficult to employ the theory in a practical environment without physical practice.

As these comments were from a variety of recruits it demonstrates that PAR is unlikely to have been employed to update the lessons way those lessons are taught. This could be due to numerous reasons such as time, resources and requirement of specialist training or equipment for instructors. This is confirmed by Petty (2009) who suggests that to employ a student-centric approach to teaching would require a longer time frame than a teacher-lead lesson.

Whilst many comments highlight the positive experience when receiving a practical, hands-on lesson, these lessons only really serve to develop gross motor skills through repetition. This embeds the practice into muscle-memory that can be repeated almost autonomously, for example during the passing-out parade.

The PAR methodology on the other hand is designed to encourage student-centred learning to develop cognitive ability. This makes it difficult to ascertain any sort of improvement as the PAR methodology is not necessarily suited to these types of lesson, which make up the majority of the Phase 1 training programme. As such, the findings from both Chapter 4 and this Chapter were inconclusive due to the multitude of variables that could have had an impact on the results.

Instructor Impact

From the interview findings it is clear that the recruits' instructor has a vital role in their experience of the training programme, which was shown by a mixture of contrasting opinions. Whilst the research focuses on the instructional style of the instructors and how they taught their sessions, the recruits in reality commented more on the emotional impact the instructors have. This was either viewed as very positive or very negative.

The characteristics of 'good' instructors were seen as positive and encouraging and, in some examples, conducted regular 1:1 sessions with recruits to check on their progress. Alternatively recruits felt that shouting from instructors, done so to inspire a sense of urgency, can have a negative, de-motivating effect and lower self-esteem levels in the recruit.

This shows that the instructor's approach can provoke different reactions in different recruits. That approach in turn helps to establish a holistic, over-arching motivational climate that seems to be the underlying characteristic of Phase 1 training. Arguably it is, in fact, the external motivational climate rather than PAR that 'reaches in' to the recruits and adjusts their internal motivation levels by proxy, all the while appearing as self-achieved perception by the recruits.

The Training Environment

Ultimately, the question that this research asked was "what makes recruits become more like thinking soldiers?" Based on the research conducted there is no single answer, but instead a combination of factors that make up the training environment. Although these elements were not specifically referred to by recruits, a number of them indirectly referenced the external forces of the programme that are set in place to mould civilians into soldiers, for example the pressures of the course.

Phase 1 is a particularly changing environment for recruits, irrespective whether they are in PAR or non-PAR. What the recruits have identified across Study 2 are the factors that they must overcome on the course and also the factors for successful completing the course. These could be separated into Enduring Factors – the consistent, standardised make-up of the programme such as the lessons,

and Enabling Factors – the changeable characteristics of recruits. These factors are summarised in Table 5.8.

Table 5.8 Factors of Phase 1 Training

Factor	Examples
Enduring factors	Course design, time pressure, volume of information, standardisation of lessons.
Enabling factors	Predispositions (confidence, good levels of fitness, time management, previous experience in a similar environment such school or university), positive instructor traits (ability to listen, supportive, firm but fair approach), support networks (fellow recruits, instructors), enjoyment.

What this shows is that PAR is a small cog in a much larger machine. It is the frictions of an enabling factor colliding with an enduring factor that will provoke the mindset of the recruit into becoming an 'Agile Warrior'. This can either have a positive reaction, which sees the recruit adapt to the pressures, or a negative reaction, which sees the recruit attribute blame to external factors. This is notably highlighted when comparing the narratives of Lawrence and Luke. Although they were from the same platoon with the same instructors, their reactions to the course were completely polarised. Lawrence reacted very negatively, attributing blame to the instructors, whilst Luke saw no issue with the instructors and had a confidence level that allowed him to enjoy the training.

Recruit Results

All of the recruits who participated in the research for this thesis eventually successfully completed their Phase 1 training programme and 'Passed-off' of the parade square. They all moved on to Phase 2 training with their respective Regiments or Corps that they joined.

5.4.2 Study Limitations

In this chapter, a robust analysis was conducted to select eight recruits from a total of 239 in order to elicit their experiences of Phase 1 training using an in-depth interview method.

In doing so, a number of limitations are acknowledged. First, replication within further contexts is necessary to confirm findings as this study was conducted within a single context. In addition, there was an irony in the time available to interview the recruits. Due to the constraints of the timetable these interviews were allocated between lessons, leading to an average interview time of approximately 10 minutes; longer time available for interviews may have uncovered more emergent themes.

It is also important to highlight my own bias within the study. The ideal outcome would be able to report to the British Army (who is funding my participation on the EdD programme) that PAR improved the overall ability of recruits and that those results were statistically significant. However, the rigours of the methodology and data analysis combined with independent reviews from the research team should help to negate some subconscious bias of mine. However, it is recognised that although I hold professional qualifications (2 x PGCEs, MEd) and experience as a teacher (Secondary

schools and current role in the Educational & Training Services branch of the British Army), there was still a clear power dynamic, mainly due to rank, that may have influenced the results.

5.4.3 Links to Other Studies in this Thesis

Study 1 (Appendix 2) examined Phase 1 training in order to identify emergent issues. This led to the identification of friction between instructors and course designers regarding the standardisation of lessons taught as part of Phase 1 training, culminating in the decision to place PAR at the focal point of the research. Chapter 5, the first part of Study 2, then examined the impact of PAR from a quantitative perspective, focussing on recruits' levels of motivation, SRL and reflection.

The study described in this chapter sought to triangulate the findings from both of the other studies by corroborating the narratives of the recruits with both the quantitative data from Study 2 and the interviews from Study 1. In addition, the anecdotal evidence and observations conducted aided the triangulation. Concurrently, this study expanded on understandings from the previous studies findings. It has provided a strong understanding of the impact of PAR and the overriding factors impeding its effectiveness. Chapter 6 will serve as a platform for discussion of the findings and will offer conclusions on what it means to the British Army and educational theory.

Chapter 6 – Key Findings

The previous chapters have outlined the research and methods pertaining to this thesis and have documented the findings of the analysis conducted via those methods. As such, this final chapter sought to establish conclusions via discussions that related to the findings, gaps in current literature within the sphere of the research questions. In order to reach those conclusions, the Introduction (Section 6.1) recaps the underpinning aims of the research. Following this, Section 6.2 discusses the unique contributions to knowledge which the studies have contributed to. Next, the research limitations are outlined in Section 6.3. Implications for practitioners are then outlined in Section 6.4, followed by future considerations for the British Army within the context of this research in Section 6.5. Finally, Section 6.6 concludes the thesis.

6.1 Introduction

Within the midst a rapidly changing global landscape, the British Army has had to adapt to its surroundings accordingly. This has included a decrease in serving personnel (HM Government, 2010) with further cuts to the Defence budget on the horizon (MacAskill, 2017). In order to mitigate the reduced numbers of British Army staff, the British Army has started to redevelop and redesign their training programmes in order to produce more flexible and agile thinkers (Liddy, 2010). As such, trials have taken place at Phase 1 training establishments to assess the effectiveness of more constructivist-based methodologies, such as Present, Apply, Review (PAR) (Petty, 2009). This is a fundamental change to training delivery, as previous instructional techniques have been based on behaviourist theories. This thesis focussed on Phase 1 training establishments as instructors who work there are given priority when attending the updated trainer course that taught the PAR methodology. As such, Phase 1 was the only place in the Army to collect data regarding the instructional methodology change. However, with Phase 1 training programme already 'full', striking a balance between the traditional elements of training, such as ceremonial drill, but also being open and inclusive of constructivist techniques, such as peer-to-peer learning and group discussions, could prove incredibly difficult.

With this narrative in mind, this research attempted to unpack recruit experiences during Phase 1 training through evaluation of the instructional design, as well as assessing the effectiveness of the trialled instructional methodology (PAR). As such, this thesis has addressed the following seven research questions:

RQ 1: How effective is the instructional design at Phase 1 training establishments?

(Pilot Study)

RQ2: What was the impact of PAR on recruits in regard to motivation levels?

(Chapter 4)

RQ3: What was the impact of PAR on recruits in regard to self-regulated learning?

(Chapter 4)

RQ4: What was the impact of PAR on recruits in regard to their reflective practice?

(Chapter 4)

RQ5: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' motivation levels? (Chapter 5)

RQ6: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' self-regulated learning? (Chapter 5)

RQ7: How and why did Phase 1 training and instruction (PAR vs non-PAR) have an impact on recruits' ability to reflect? (Chapter 5)

This thesis captured a detailed, emerging and dynamic picture of 239 recruit experiences during Phase 1 training and outlined the experienced journeys from initial design stage to the final weeks of the training programme. In doing so, it unpacked underlying challenges outlined in recent literature (Hardre and Kollmann, 2013; Onyia, 2013) within instructional design (see Section 2.2.3) as well as highlighting the impact of the recently employed PAR method, as evidenced from the interviews, observations and discussions with multiple instructors and discussions with my colleagues.

As outlined in Section 2.2.3, a relevant gap in research has been identified in bridging the link between instructional designers, the instructors who deliver the training and the reactions of the recruits. This gap is particularly evident within the military context (DETS(A), 2012), as opposed to the plethora of non-military applications of instructional design, such as business (Braga, 2017) or distance education (Rienties & Toetenel, 2016). As such, the combination of examining the instructional design within a military context along with the employment of the new instructional direction lent itself as a gap that required in-depth exploration through the research in this thesis in an attempt to bridge these research gaps.

Therefore, one goal was to unpack recruits' experiences during their time under training at ATC Pirbright by analysing the changes they demonstrated, using specific target areas in motivation levels (Ryan & Deci, 2000), self-regulated learning (Duckworth et al, 2009), and powers of reflection (Hays & Gay, 2011). Figure 6.1 highlights the relationship between the various elements of research within this thesis, the contributions of which are discussed in Section 6.2.

6.1.1 Summary of Findings

The findings and conclusions of the thesis will be elaborated in more detail within the following sections of this chapter. However, a summary of the findings and conclusions are as follows:

Overall Findings of the RQs (6.2)

The data, both quantitative and qualitative, displayed mixed results after analysis. Some elements from the questionnaire pointed towards a positive relation between the implementation of PAR and the attributes chosen for effectiveness-measuring; but this was met by a mixture of negative relations from the respondents. The follow-up interviews were designed to investigate further and uncover reasons why the results had been mixed. However, whilst there was some evidence to support PAR-related improvements, particularly in motivation levels, it was difficult to attribute the improvements directly to PAR. As noted, the recruits spoke more about the environment in which they were learning rather than the instructional technique.

Conclusion: Sword Company (6.2.1)

The rehabilitation Company proved to be a positive example in demonstrating how PAR could be more effectively employed as there was a much more flexible timetable for instructors to utilise.

Conclusion: Motivational Climate (6.2.2)

Based on the comments made by the recruits during the interviews, they eluded to the extraneous pressure of the programme attributing to their increased or decreased perceived performance. This suggests that the instructional methodology used by instructors may be overridden by other factors within the holistic parameters of the training programme. This could be due to the actions of the chain of command, the trainers or fellow recruits, or the reaction to stress that the programme provides.

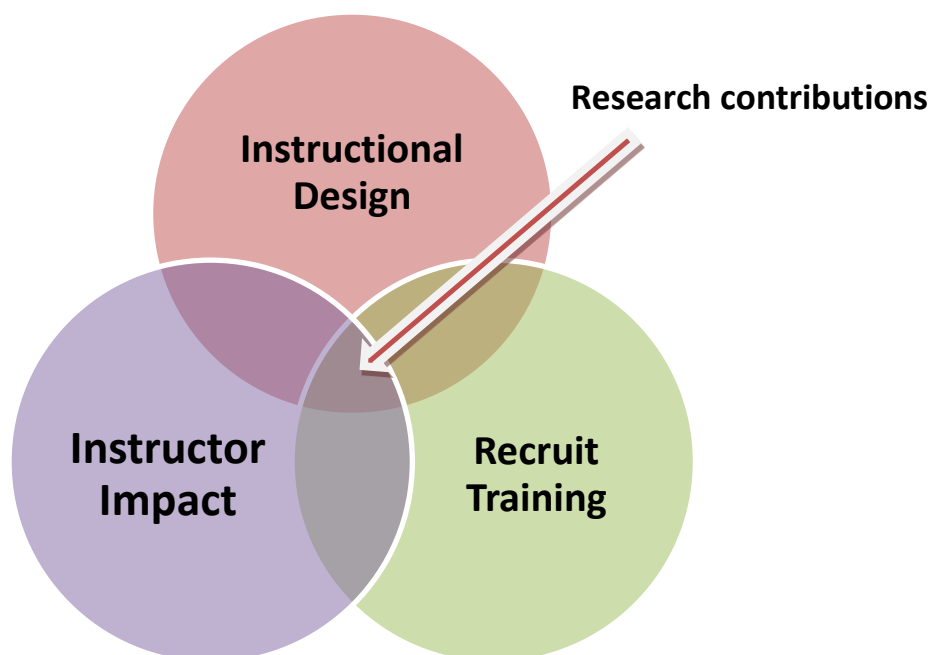
Conclusion: Research limitations (6.3)

Whilst the design of the data collection and analysis was robust, there will inevitably be inhibiting factors to the research. Specifically to this thesis, factors included the potential dilution of responses from recruits as each platoon would not necessarily have the same instructor for the entirety of their training. This, along with the practical nature of the majority of lessons, possibly led to the mixed responses from the questionnaires. The Dunning-Kruger effect (1999) is also explored as a potential reason for the mixed responses.

Conclusion: Practical Implications – Organisational Change (6.4.1)

The introduction of PAR to the updated DTTTv2 instructor training course was part of a wider transition into a coaching culture within the British Army. Whilst it is difficult for any business to conduct significant organisational change, the British Army has the additional frictions between the innate hierarchical structure of the army to contend with. However, this thesis highlights the importance of personnel in specific job roles when conducting the change as well as the need to deliver constructive-based training to the wider army if not within Phase 1 training establishments.

Figure 6.1 Knowledge contributed by research in this thesis



Section 6.2 outlines the key contributions that are based on each research question, including discussions relating to current research. The findings of the research conducted as part of this thesis are of value to not only the Armed Forces community, particularly those involved in training design, but also companies in the private sector who are potentially updating their training to incorporate a more constructivist approach to employee professional development.

6.2 Contributions to knowledge

The pilot study of this thesis attempted to answer RQ 1. In order to do so, semi-structured interviews were conducted at ATC Pirbright; a Phase 1 training establishment within the British Army. The training officer and three recruits from Sword Company (the rehabilitation platoon) participated in the interviews in which they were asked questions regarding the outline of the training design for Phase 1 (training officer) and the experiences of Phase 1 (the recruits), particularly in regard to learning.

The results provided an insight into two sides of Phase 1 training, and what emerged was a friction between the required standardisation of the lessons taught and the instructors' want for injecting their own experience to bring the lessons to life. These results helped to provide the focus of the main study (Chapters 4 & 5) onto recruit learning. At the time, the PAR methodology was being trialled at Pirbright and offered a possible solution in terms of keeping a standardised approach, but also allowing instructors the flexibility to conduct lessons how they saw fit, provided the same key learning points (KLPs) were taught. A summary of answers for RQ 1 are listed below:

RQ 1: *How effective is the instructional design at Phase 1 training establishments?*

- The limitations of a pedagogical approach should be acknowledged when moving towards an adult learning environment. This entails putting the learner and learning as an output at the

heart of training and education processes. Constructive alignment is an appropriate framework for a military context.

- The training design process needs to be congruent with the training delivery approach to enable full transition to a constructivist approach.
- Lessons learned from the implementation of constructivist approaches should be taken into account if these techniques are to be used elsewhere across Defence, e.g. being utilised in Phase 2, Phase 3 and the field army.
- Further instructor training should form part of continuing professional development, particularly for more advanced skills such as coaching.

Previous work has outlined the varying elements that form instructional design. Gustafson (1996) suggested four elements that contribute to the process; analysing, design, delivery and assessment of learning, all of which are relevant to a military context. This is echoed in the ADDIE format as described in Section 2.2.1. These theories were in turn formed from other work including Bloom (1956) and Gagne (1977) whose conditions of learning including those reminiscent of the Phase 1 programme such as verbal information, intellectual skills, psychomotor skills, attitudes and cognitive strategies. The course design process at Phase 1 is, therefore, fundamentally based on Bloom's and Gagne's work.

However, as discussed in Chapter 2, both Bloom and Gagne incorporated elements of 'mastery' within their theories, i.e. in order to progress to the 'next level' the learner must first competently complete prior levels. This can be criticised for its use within a military context for being hierarchical (i.e., having to go through lower-levels of understanding before progressing to higher order thinking) and favours instructor-led delivery methodology. Further progression into an andragogical, student-centred approach would be hampered if the traditional Defence Systems Approach to Training (DSAT) course design methodology was not adapted to consider an alternative taxonomy, for example, a revised taxonomy which accommodates metacognitive knowledge i.e. the Thinking Soldier. This gap in knowledge led to the inclusion of student-centred methodologies, the examination of which was the focus of this research.

Constructive Alignment (Brooks and Brooks, 1993) identified that a facilitator is required to adapt to a new set of skills including encouraging student autonomy and critical thinking and providing enough time for students to construct their own meaning when learning something new. Whilst theoretically this is an ideal, in practical terms this research has shown that a limit on time can affect the implementation of constructivist-based lessons. This was due to the compact scheduling of Phase 1 training and the balance of keeping traditional serials such as ceremonial drill and employing the new techniques.

Lessons can be drawn from the US Army in which Cianciolo et al. (2011) carried out research for the US Army into the competencies required for problem-based learning. They noted that there is an inextricable link between collective action, individual experience and learning and that an instructional method that recognises that link is required when preparing soldiers to learn via problem-solving experiences. In order to implement student-centred instruction, (including problem-based learning) a combination of conscientious work-habits, problem-solving skills and domain knowledge is required from military instructors as well as a promotion of lifelong learning

and development of others. This research has highlighted the requirement of further training for instructors in order to continuously improve on their student-centred teaching approach.

For my main study, I designed a mixed methods approach for collection in order to capture the experiences of 239 recruits during their Phase 1 training. Those recruits made up eight platoons; four were taught by instructors who had been trained to use PAR, and the remaining four platoons did not. A pre/post survey was used to measure any differences across three key constructs: motivation, self-regulated learning, and reflection. Those constructs were considered to be reflective of the underpinning values of the agile warrior concept (Liddy, 2010) i.e. a more cognitively astute soldier. The results were inconclusive in regard to determining whether PAR had a greater positive impact on the three constructs than non-PAR instructional approaches.

The surveys were followed-up by semi-structured interviews with eight volunteer-recruits to further unpack the nuances of the data. Those interviews highlighted the complex nature both of determining the impact of PAR and the impact that Phase 1 training had on individuals. Whilst the results could not answer RQs 2-7 sufficiently, the various narratives did highlight other factors that effected recruit-learning such as instructor impact and the motivational climate. A summary of answers for RQs 2-4 are listed below:

RQ2: *What was the impact of PAR on recruits in regard to motivation levels?*

- PAR has a greater impact on increasing recruit motivation levels than non-PAR methodologies; however, this was not to a statistically significant degree.

RQ3: *What was the impact of PAR on recruits in regard to self-regulated learning?*

- PAR demonstrated a negative effect on recruit SRL. Non-PAR methods increased to the greatest degree amongst all elements that were measured. As with the motivation results, all readings were not statistically significant.

RQ4: *What was the impact of PAR on recruits in regard to their reflective practice?*

- All but one key construct indicated that using PAR has a positive effect on recruit reflective practice.

The research conducted as part of this thesis suggests that PAR-trained instructors do have some impact on recruits' motivation levels. However, although all of the key constructs increased positively, the effect sizes were small and not statistically significant. Although this demonstrates a limited degree of support for the effectiveness of PAR on developing student-centred learning, in fact it could be due to a number of factors. Bartels et al. (2002) and Michou et al. (2013) suggest that increased motivation could be due to wanting to achieve success and to avoid failure, with feedback also playing an important role in achievement and therefore increasing motivation for further learning. These factors point towards the importance of the instructor in regard to the impact they have on the recruits, which should not be underestimated regardless of instructional methodology. However, this is an aspect that course designers cannot standardise, but the instructors play a vital leadership role in developing social cohesion and trust amongst the recruits to create a positive learning environment.

In regards to SRL; whilst the results are statistically insignificant, the research demonstrated that PAR had a negative relationship in regards to recruits SRL levels. This could be due to the lack of time or autonomy in the recruits learning, opposing Pintrich & Zusho's (2007) suggestion that SRL is a process in which students take an active role in managing their own learning in terms of motivational, cognitive and behavioural aspects. Similarly, Zimmerman (2008) suggests that in order for SRL to be effective it should involve actions taken by the learner to plan for, execute and analyse their completion of a learning task. This research has identified that time to analyse the learning that takes place is a key consideration that was restricted during the Phase 1 training, with other requirements sometimes taking priority, such as ironing instead of learning.

There could also be other factors as to why the results yielded no difference in effect of PAR on motivation, self-regulation, and reflection. One reason is that potentially the participants might not fully understand the impact of PAR as they are not only on the receiving end, but they may assume any training is merely part of Phase 1. As such, when it was measured at week 12 they did not do any better or worse than the control group because of the delayed time effect of knowing what type training they were receiving. Along with this, even if the psychometric measurements did not show any difference, perhaps the qualitative, lived experiences highlighted some nuanced but important differences. This shows that it would be more appropriate to conduct qualitative research in this field rather than quantitative as it failed to decrypt what the recruits were really thinking and feeling.

Another reason could be that the PAR instructors were actually not fully teaching in a PAR-like manner, whereby they perhaps just taught in the way they were familiar with. This could also be due to the lack of time to implement changing the lessons sufficiently. An instructor usually works in Pirbright for two years, as with any posting (length of time in job). Of those two years, they will switch between instructing a platoon and other non-recruit centred duties e.g. guard duty. In reality they may only have two or three platoons, therefore teaching a specific lesson two or three times at the most. It is possible that the instructor may not have the time, or motivation, to fundamentally alter a lesson that they may only teach one more time, which might explain some of the reasons why there were no differences in the two conditions. Indeed, a recent longitudinal study by Ebert-May et al., (2011) training and following 77 teachers for one year through a professional development training programme and observing their actual teaching in practice in the classroom at various points in time, indicated that although the teachers thought that the training helped them to become more constructivist and student-centred, in practice their teaching practice remained the same. In other words, changing teaching approaches of instructors might be inherently difficult, and may need substantial incubation time as well as senior management support.

Military training tends to stress a focus on developing military ethos that helps to build team cohesion and identity. This concept of social cohesion has well researched impact upon motivation and task orientation and task performance (Wentzel, 1998; Halbrook et al, 2012; King, 2015). Detailed analysis shows, contrary to expectation, that group cohesion is built upon positive group performances to a greater extent than vice versa. Using Adair's (1973) terms; the task is more significant than the team. The implication for training is that group-shared focus on the learning task will strengthen group cohesion. This plays into the value of social learning, for example traditionally it is the individual who holds responsibility for their learning. However, recent research demonstrates the benefits and practicalities of exploiting our natural social tendencies to develop group and peer learning and assessment strategies (Bakken, Obiakor, & Rotatori, 2013). Contrary to

a process-focused attitude, peer and group strategies can lead to very effective learning (Linton et al, 2014). With teamwork being greatly emphasised within such organisations as the military, it is remarkable that it remains focused on individual learning and assessment practices. Similarly to being deployed on operations, having a belief in the learning goal of the team holds the same importance as having a belief in your own goals.

Trust is a crucial element in effective learning; you need to be able to have trust in the value in the learning, your peers and yourself as well as those you are leading that trust i.e. trusting the instructor. Recruits must trust that their instructors are honest and show consistency in their language and in their behaviour. This is particularly true in regard to praise and feedback. The learner can immediately recognise 'faint praise' and instead of building up self-efficacy, it can actually harm it (JSP 822, 2017). Research has also shown that trust in the relevance of the training from the viewpoint of self, peers and superiors, is a significant motivating factor in regard to learning, belief in learning and learning transfer (Baruch et al, 2013). The military culture places a large degree of stock within the Formal Training Statement (the specified training requirement); however, if the informal culture regards the training to be fruitless or not representative of reality then effective learning is unlikely to occur. The implication of this impacts on training design and the critical question of whether that training content is appropriate at that moment in the sequence of learning (JSP 822, 2017).

Five key attributes of the self-regulated learner were identified by The Campaign for Learning (2013):

- **Readiness**
- **Resourcefulness**
- **Resilience**
- **Reflectiveness**
- **Responsibility**

Based on the results from this research, it could be argued that 'responsibility' was a key component to SRL that was not realised within Phase 1 due to its hectic nature and instructor-led teaching. In line with previous suggestions (Schank, 2005) this research found that 'learning by doing' combined with feedback can lead to increased reflective effectiveness. However, Phelan (2011) suggests that the army as an organisation needs to create a learning environment within which there is time and space for reflection, enabling deeper understanding and, as a consequence, more agile troops. As has been discussed previously, time, or lack thereof, was a key component in restricting learning and consequently reflective, ability. This is highlighted by the results of this research that suggests that whilst the recruits deemed themselves to be content with their reflective skills across the training programme, there may not have been opportunity to develop those skills further in order to critically self-evaluate their performance. This may have been due to a number of factors such as a lack of time. Whilst it is a part of the course, there are a multitude of other factors that constitute the training programme.

The one key construct that has a negative relationship within the PAR category, Habitual Action, had the lowest overall values compared to the other key constructs. This is reflective of Hays & Gay (2011) who suggested that how something is taught does not always influence transfer to the working environment as well as it could. This could suggest that, in this context, the results showed that repetitive training derived over the course of the training programme may not be as an effective teaching tool as initially considered, with perhaps scope to employ more constructive teaching to the more rote-learning lessons.

RQ5: How and why did PAR have an impact on motivation?

- Increase in motivation due to motivational climate of course e.g. competition, comradery.
- Greater impact on higher performing recruits.
- Negative instructor narratives can decrease motivation levels.

RQ6: How and why did PAR have an impact on self-regulated learning?

- Prior attendance at school or university facilitated transferable SRL attribute.
- SRL development affected by physical exhaustion.

RQ7: How and why did PAR have an impact on reflection?

- The employment of diaries aided in developing reflective practice; however there is a caveat on enough time available for recruits to use them fully.
- Other aspects of the course would take priority during evenings e.g. kit preparation, thereby reducing reflective practice development.

RQ5-7 attempted to examine the deeper meanings of the quantitative results outlined in Chapter 4 so that a better understanding of how best to support recruits could be identified. As indicated in Chapter 5, one factor that occurred regularly was the lack of time, both from the recruits' point of view when organising their day but also in regard to the lack of time provided by the programme designers to implement the new methodology. As part of the wider research scope for this thesis, an interview was conducted with the senior course leader of a pilot training programme who also employs the PAR methodology for their teaching. He stated that compared to a standard lesson, a PAR lesson delivered effectively would be two to three times longer. This is agreed by the specialist coaching staff at the Army Staff and Leadership School, also based in Pirbright. To attempt to include the length of lesson proposed by the sources would require a dramatic altering of the current training programme. This would more than likely require cutting whole topics from the programme such as drill or navigation but removing any element would be unlikely. Ironically, an example of good practice already exists in Pirbright.

6.2.1 Sword Company

One area of Phase 1 training where PAR was able to be used more effectively was within Sword Company, the rehabilitation platoon for injured recruits. Sword Company does not follow the same training programme as the regular platoons as its main focus is on the recovery of the injured recruits. However, it does present an opportunity to revisit certain aspects of the main training programme so that the recruits do not fall behind or get 'skill fade'. This of course applies to more theoretical elements rather than physical training due to the injuries.

As they do not follow the main training programme, Sword Company instructors have more flexibility in what subject they teach day-to-day, subsequently allowing more time for those lessons to be taught. In this regard, instructors are able to use the PAR methodology to better effective as they are able to be more creative, placing learning on the student. There is more differentiation to accommodate in Sword Company as they have recruits from any element of the course from Week 1 through to Week 14. However, again this differentiation provides more opportunities for instructors to deliver student-centric lessons and placing the responsibility on the recruits in regard to their learning. This demonstrates that, if given sufficient time, PAR could be implemented more effectively. This would require further investigation and trials within the Phase 1 environment.

6.2.2 Motivational Climate

As highlighted, motivation levels had increased in the majority of recruits both within the PAR and non-PAR groups. However, the data suggested that the increase in recruit motivation came from external sources e.g. instructors, climate, rather than from increased internalisation i.e. from PAR instruction (see Section 5.3 for the detail of the findings). Recruits found that either their motivation or sense of urgency had increased whilst on the course or that it had maintained a steady level for those that consider their motivation levels to be relatively high. The climate, an external factor, was seemingly able to adjust the recruits' internal motivation levels, suggesting that the overarching climate possibly overrides any effect that PAR was having, attributing positive and negative effects to the way the recruits were equipped to deal with the training programme. Motivational climate can also be subdivided in terms of ego and task motivators. Research indicates that motivational climate can alter trainees and trainers task or ego dispositional orientation in their desire to be competent (Lameiras, Almeida, & Garcia-Mas, 2014). This would suggest that a task motivational climate would motivate and guide trainees and trainers to adopt task achievement orientations and this would represent superior performance outcomes.

There are two situational factors that influence motivational climate. The first is the significant other who could be a commander, trainer or fellow trainee. The second is stress. Trainees with ego achievement orientations perform relatively well in stressful environments due to their ability, in the short term, to divert attention away from the internal stressor, which could be the task or the significant other. Research in high-performance environments indicates that experienced or elite performers cope better with stressful events when they adopt problem-focused coping strategies, which are themselves task orientated (Holgado, Navas, & López-Núñez, 2010).

It is believed that the learning philosophy of constructivism is best placed in training environments to exploit and develop trainees' mental toughness, which in turn will assist them in appraising stressful events appropriately towards a task orientation. However as noted there are restrictions placed onto the training programme, namely time.

6.2.3 Summary of contributions to knowledge

The data, both quantitative and qualitative, displayed mixed results after analysis. Some elements from the questionnaire pointed towards a positive relation between the implementation of PAR and the attributes chosen for effectiveness-measuring; but this was met by a mixture of negative relations from the respondents. The follow-up interviews were designed to investigate further and uncover reasons why the results had been mixed. However, whilst there was some evidence to support PAR-related improvements, particularly in motivation levels, it was difficult to attribute the

improvements directly to PAR. As noted, the recruits spoke more about the environment in which they were learning rather than the particular instructional technique.

The available data, although mostly displayed mixed results, presented a number of options for discussion points explaining why it has been yielded so. It has demonstrated that PAR as an instructional methodology is difficult at best to measure. Whilst the results could obviously not be predicted, the design of the data collection methodology was, theoretically, very robust. It was comprised of a mixed methods and quasi-experimental approach, which was not only based on previous use in other literature but was also trialled prior to use for this thesis before being fully implemented. As such it was surprising to see how the results unfolded. In regard to learning, recruits referred mainly to the development of physical skill, mastery tasks such as rifle drill. There was limited evidence of conceptual development, other than the new Individual Development lessons or Functional Skills, which is also mentioned as being “too easy”.

Whilst it is difficult to measure the effect that PAR has, what was more evident was the effect the motivational climate had on the recruits. There was a clear link between the hectic training environment and the increase in recruits’ motivation and self-regulated learning, more so as non-PAR recruits also attested to this. Interestingly there appeared to be certain characteristics of those who had a positive experience on the course such as confidence and time management or having recently attended a similarly structure environment such as school or university. Once the recruits reach a “motivational threshold” they either have a positive experience where they are more open to learning, or if they do not have those characteristics or have come from a civilian job then they start on a downward spiral of self-doubt and negative experience.

The training environment acts as a catalyst for increasing motivation, overriding any effect PAR may have made within the constraints it is used in. The recruits’ ultimate goal is to pass the course, in doing so they could be described as either Ego or Task orientated as stated by Achievement Goal theory (Nicholls, 1989). This states that the climate can affect the goal orientation of the recruit as the coaching culture itself could be described as a task orientated concept wrapped up in an ego-orientated construct. Therefore, the army coaching culture is deterministic; your fate as a thinking soldier, an agile warrior, has boundaries and is already set. The culture needs to change to facilitate individual and collective growth. This has a great effect on day-to-day training and should be explored further.

The current approach to training across the British Army is a blend of different approaches within a behaviourist environment, which reflects the efforts the army is making to respond to the changing nature of warfare. The behaviourist environment, underpinned by constructivist instructional design, was and remains appropriate for effective training of large forces in a multitude of disciplines. Future Defence requirements emphasise the importance of adult learning and constructivist-based learning paradigms which encourage the development of metacognitive skills. The FCOC (DCDC, 2011b) drives home the fact that the army, and UK Defence, now needs to move further away from an adequate approach and engage with a new paradigm which does not dismiss behaviourism, it has its place, but which embraces adult learning and furthers the use of constructivist-based learning.

6.3 Research Limitations

The research set out in this thesis used a robust mixed methods approach in order to unpack recruit experiences during Phase 1 training. This comprised of a mixed methods and quasi-experimental

approach, using a pre-post quantitative survey follow-up by semi-structured interviews. Each methodology used was not only based on previous use in other literature i.e. prior evidence of a robust method but was also trialled prior to use for this thesis before being fully implemented. As such it was surprising to see how the results unfolded. However, it is recognised that there were a number of limitations inherent in the study:

6.3.1 Diluted Responses

An issue facing any research thesis is ensuring quality data to collect and analyse. The data selection process for this research strived to select reliable instruments that were employed in a fair and repeatable manner, for example using an even number of platoons that had instructors that were PAR-trained as those platoons who did not (4 each). However, simply because there was an even split of PAR/non-PAR instructed platoons does not necessarily mean that every individual had the same instructors. Recruits may have joined the chosen platoons in the intermittent time between taking answering the surveys. Equally others may have withdrawn from the platoon for a variety of reasons including injury or unsuitability. Not only the students, but instructors could also be swapped in depending on relative circumstances. This effectively leads to a dilution of data results making it difficult to get a pure reading.

6.3.2 Mixed responses

There could be a number of reasons to account for the mixed responses between the pre and post questionnaires from the recruits. Coupled with this is the lack of sufficient evidence to support the effectiveness of PAR clearly. For example, the majority of responses are in favour of the practical, hands-on lessons. However, these lessons, such as rifle drill, are predominantly set in how they are delivered; there is only a certain way to accomplish the required learning outcome for the instructors and there is little room for innovation and student-centred learning that PAR should help to facilitate.

6.3.3 Dunning-Kruger Theory

There are limitations in using any instrument for data collection. In using a self-assessment survey, the reliance is on the honest self-analysis of the individuals, whether they realise how honest they are being or not. The Dunning-Kruger effect (1999) suggests that those with a lower intellect generally overestimate their abilities as they have overall lower self-awareness. However, the more they come to understand of themselves, their level of self-perception increases.

This could apply very aptly to the nature of Phase 1 training. Firstly, entry standards are set relatively low, with a minimum of a D grade in GCSE English and Maths, although as seen from the data there is a mixture of recruits with A-levels and undergraduate degrees. Also, the intensity of military basic training serves to highlight an individual's strengths and weaknesses that they probably did not even know they had, thereby increasing self-awareness. This is coupled by the actual training that helped to improve the skills of the recruits, increasing their metacognitive competence and helping them recognise the limitations of their abilities.

Therefore, it could be a valid reason for the mixed results, particularly the negative relations. At the start of the training the recruits could have felt relatively more confident in themselves as they their internal scale of 1-10 is attributed to their previous life experiences. As they go through the hard physical and mental training, their ego is exposed, and their internal mechanism may have to be

readjusted to account for these new readings. So, whilst recruits may mark themselves 'lower' during the post questionnaire (38%), it could be because they have actually grown and stretched themselves, meaning that they may have actually improved their motivation or self-regulated learning, but they do not feel like they have because they are now more critical of their performance e.g. their '7 out of 7' now seems like a '7 out of 10'.

6.4 Practical Implications

Although it is beneficial to be trialling new means and methods of training at Phase 1 establishments, in the example of PAR it can actually be a hindrance and in fact a victim of its own success. Whilst the benefits of constructivism are known, the restrictive nature of Phase 1 essentially may have strangled the proper implementation of PAR to its detriment. As a result, it was in danger of being stopped from being deployed into the wider army, where it would be able to be used as it is intended due to the flexibility and time available for continuous professional training compared to the tight restrictions of Phase 1. Phase 1 is more about learning physical, motor skills and training muscle memory, rather than developing conceptual ability, i.e. developing the "thinking soldier".

However, during the data collection phase of this thesis, I would liaise with the instructors at the Army Staff and Leadership School based in Pirbright and we would discuss the nature of my research. One of the main topics would be in regard to the appropriate placing of PAR, as they are the group who develop the training programmes such as DTTTv2. Based on my research and findings, I argued that PAR is far more effective when given sufficient time to implement, for example in Phase 3 or in regular unit training. Since writing this thesis, the army, instead of removing constructivist approach that was deemed not to be effective in Phase 1, has indeed kept PAR within DTTTv2 and have opened up the course to instructors who are not in training establishments i.e. unit training (DIN-005, 2017). This demonstrates the impact that this research has already had at an organisational level. However, in order to fully implement a constructivist approach there needs to be a cultural shift and change in the minds of all stakeholders.

6.4.1 Organisational Change

Organisational change is notoriously difficult. Research suggests that across different types of change, including mergers and acquisitions, restructuring and culture change, on average, only one in three are successful (Smith, 2003). In another study involving 1,532 global leaders, 41% of change projects were considered successful, 15% either missed all goals or were stopped, and 44% did not meet time, budget or quality goals (Berman, 2008).

For change to succeed, individuals must complete a transition process where they let go of the past and embrace the future. This process is a transition experience, and it has emotional, psychological and physical implications. Transitions occur in response to any event which changes relationships, routines, assumptions and/or roles, requiring new patterns of behaviour (Schlossberg, 1995). The difference between 'change' and 'transition' can be understood as follows:

Change refers to an organisation's plan to move from a current state into a future more desired state. It is what the organisation is trying to achieve and may involve activities like restructuring, merging or introducing new technology and ways of working. It is helpful to think about change as the external situation, it is typically relatively objective and tangible.

Transition is an internal process that people must go through to adapt to change. Transitions are personal, subjective and relatively intangible. Until people successfully transition from the old way to the new way, real change will not happen. Successful change therefore relies on successful transitions.

Organisational change can also be difficult because the organisation puts in place new processes and believes that change has happened, but in reality, the change is only partial. The Defence Lessons Identified Management System (DLIMS) is a well-established, Defence-wide application by which lessons from the full range of Defence activity are identified and, it is hoped, learned. However, having a lessons-learned process in place does not make the MOD a “Learning Organisation”. Indeed, failure to learn from lessons is regrettably a frequent observation (Forrest, Gigg and Kelly, 2012). It is not just the process of training delivery as an event that MOD needs to change understanding of, it is the context, purpose and therefore process and nature of training delivery that needs to change.

As such, effective transition management is at the heart of successful organisational change. It involves helping people to understand and manage the process that they go through when they experience change. Leaders can increase their capability in this area by developing greater awareness of the emotional, psychological and physical impact of the process, understanding how people are responding to change and intervening appropriately.

Engagement is at the centre of any transition. This represents the view that realising the planned value of any organisational change initiative is virtually impossible without people engagement. Engaging employees is a sustained process rather than an event or a line item on the project plan (Scott and Wright, 2005). It is achieved by involving employees in the development of the story for change, co-creating the process and giving people the technical and psychological skill to participate and manage the change. Engagement must be developed at the levels of ‘buy-in’ (people understand the need for change), ‘meaning’ (people are emotionally connected to the project and its success) and ‘capacity’ (people are equipped to take part and are working to make the change a success), whether those parties are training design, the instructors, or the wider army.

Whilst in theory these elements are reasonable, in my own opinion this can prove difficult within a military organisation. This is due to the hierarchical structure of ranks across the army. Each level of rank grows accustomed to being given direction by their respective superiors and essentially told what to do, sometimes to the contrary, despite mechanisms such as the “Have Your Say” surveys that are used to capture opinions from all personnel. An example of this was the change to pensions in 2015, in which a proportion of those who had served for a certain number of years abruptly had their pension plan changed, causing frustration and financial angst to the majority of those affected. There’s a degree of irony in the army trying to employ a methodology that promotes thinking, when the vast majority of decisions are made for others.

6.5 Future Research Directions

6.5.1 Recent Developments

At the time of conducting the data collection there have been two main developments in the use of PAR and the lessons taught at Pirbright. Firstly, as part of a trial, a new set of lessons will be injected into the timetable called “Individual Development”. The aim of these lessons is to discuss issues such as recent conflicts, moral decisions and leadership with recruits in a much more direct attempt to develop military-specific cognitive attributes and raise situational awareness as set out in the Agile

Warrior concept. These lessons will be delivered by Platoon Commanders, usually Lieutenants or Captains who have received training at the Royal Military Academy, Sandhurst (RMAS). These student-centred, cognitive-development lessons are much more suited to a constructivist teaching approach, which PAR could conveniently fill (Petty, 2009).

Secondly a new instructor training course has been developed. This new course will be the Defence Instructional Techniques (DIT) course; the entry-level, five-day instructor course (as described in the pilot study) combined with the taught PAR element of the DTTv2 course. This will allow wider accessibility for those who wish to become instructors but are not being posted to a Phase 1 instructor role, facilitating the use of the new instructional methodology in a learning environment with more time and flexibility to be implemented effectively. It is recommended that future studies examine PAR-effectiveness in the wider army.

6.6 Personal reflections on my journey during my EdD

If you had said to me a few years ago that I would be working towards a doctorate in education, I simply would not have believed you. The task would seem too daunting and difficult; “there’s no way I could do that”. And yet, here I am writing the final few paragraphs having, at the very least, put together a thesis based on my professional context. Participating in the EdD programme has been a long journey. And akin to the life of an elevator operator, it has had its fair share of ups and downs. However, I have always felt that in order to learn and develop, one needs to be pushing beyond comfort zones to see how much you can really achieve. And, whilst growth can be painful, it is in that pain that you truly develop and become stronger.

In this, I feel that I have grown both professionally and personally. Whilst I have always strived to better myself, in a way my previous endeavours now feel as though they were training serials in preparation for this mountain to climb. And it was in through experiencing the difficult times during this programme that my determination and self-belief has grown more than I thought it would. This personal growth has consequently fed back into my professional context, providing me with confidence in my abilities and also as a researcher, which I would say has seen the greatest improvement over the three or so years.

Looking back over the work I submitted for my initial proposal and during Year 1, I can clearly see how much I have improved. Firstly, I believe that my academic writing has developed substantially. This was possibly due to a number of reasons including the constructive feedback from my tutors following each submitted piece of work, through academic-osmosis from reading the amount required for the research in this thesis, and also through the frequent submissions of Progress Reports and drafts as a requirement of the EdD programme. I have certainly seen an improvement, not only across the years, but also when reflecting on my other work including my Masters of Education (MEd). However, in my opinion, I feel the greatest improvement, which was also the cause of those darker times, came in the form of developing my research skills, predominantly during Year 2. To highlight this, below is part of a reflective account that focussed on the quantitative research methods used for this thesis, which at times “felt like swimming in treacle”:

“Although I have managed to come some way in gaining basic SPSS knowledge, there are still many facets to learn about; what the data means, how to decipher and literally which buttons to push. This area is potentially where I have improved and gained the most knowledge. Interestingly, YouTube videos have been my main source of knowledge for this as I am very much a visual learner,

although many of the tutorials have very simple example data sets which do not necessarily fit with the different layers to mine. This of course was not my only source; however as there are many versions of SPSS and constant updates, many books are already out of date when detailing exactly how to do something e.g. write a code.

This has meant many, many hours of research which yield very small progressions and has taken a lot longer than first anticipated, leading me to feel quite concerned over completing the entire thesis in time as there is still the qualitative data to analyse and write up to complete. However this is the 'doctorate' part for me, where I feel I am earning my stripes that will (hopefully) all come to fruition and pay off in the end. I certainly found that it makes you consider the research methods that you use for the very first stages and what you wish to investigate. I feel this learning curve will be beneficial to look back on if I were to continue with research and although I am at the end of this part of the journey, I would compare it to a practical driving test: you may have met the standard to pass, but that does not necessarily make you a good driver. The final test is in fact the initial step towards further development of your craft, as it is only with time and experience that you really become effective.

I am glad that I went through that process though as I have learnt a great deal about reliability and validity. Also, having a clear idea of how you are going to analyse the data will affect how you configure your collection tool. For example, columns on the data collection excel sheet that I thought may not be relevant were some of the integral pieces when inputting the data into programs such as SPSS. If you did not have the correct information, then of course you cannot properly analyse your findings. I do feel that I need more guidance on the analysis side though as it is still new to me in terms of the tools being used for it."

With the benefit of 20:20 hindsight, there are of course things that I would've done differently. For example, although the EdD is a professional qualification based on your own context, at the time of undertaking the programme I was still within my first year as an education officer. As such, I did not necessarily have the wider knowledge and awareness of potential areas to research; this played a large part in selecting the area researched for this thesis. I would recommend future iterations to be paired with a senior office, possibly an Office Tutor, to act as a mentor; in the same way that the OU tutors have mentored my academic side, I feel there should be an 'opposite number' on the professional context side for guidance. Having said that, I feel that the programme has put me in very good stead for my career and the jobs I will undertake.

Secondly, the biggest risk to the study was the assumption that the PAR model was more beneficial than other techniques when using it to instruct a lesson. Framing the problem in this light and then comparing to a control group of non-PAR instructed-recruits lent itself to immediate bias. This had to be constantly justified in the methods used for data collection and when writing up the results. Whilst this is not a great grievance, it did make me aware of the thought when considering the research question as this can have exacerbated ripple-effects. Comparative to spinning a bicycle wheel; the further out from the centre you progress, the greater the effect.

However, these areas would not have been overcome without the support of my tutors. Although I have formally acknowledged their help and guidance at the top of this thesis, this programme has certainly reinforced to me the need for support structures when undertaking tasks like this. Not only should there be support structures, but that support, in this case in the form of my tutors, need to embody qualities that can have a positive effect on the student. I feel incredibly fortunate to have

had high quality tutors that have put in a great deal of their time and effort into guiding me through this journey. And whilst this is not part of the formal assessment process or purpose of the EdD, this is something I will continue to ensure in my own professional practice when supporting others.

At the start of this thesis, in reference to developing thinking soldiers, I stated that “key to this is the development of a training system that places the learner at the heart of the learning process” (Section 1.1). And although the findings of this specific thesis did not come to a concrete conclusion, I still feel that this is the case. What was alluded to in the findings was time as being a restrictive factor on a constructivist approach at Phase 1; however, that is not to say that methods such as PAR would not thrive when employed in the wider army where there is time available to do so.

I am glad and thankful that I have had the opportunity to develop personally and professionally over the past 4 years. Continuous development is crucial in order to maximise the effectiveness of individuals and organisations. In my opinion, the purpose of completing the MEd was to inform my own teaching practice (and of course others if the opportunity presented itself), however the EdD informs at an organisational level. Hopefully this is something that I have achieved; either directly via the findings of this thesis or indirectly through conversations with people in positions to incur change.

6.7 Concluding Remarks

With recent news of further cuts upon Defence in the coming Security Review (MacAskill, 2017), there is a possibility that the numbers of regular serving personnel will be reduced to a reported 70,000, equating to two-thirds the size of the French Army. As such, the need to train flexible, quality personnel who are able to consider the strategic outcome when informing tactical level situations is needed now more than ever. The research conducted in this thesis, whilst seemingly a natural research opportunity at the time, is perhaps more relevant and important than initially anticipated in providing empirical evidence for the development of the Agile Warrior of the near future.

*For want of a nail, the shoe was lost;
For want of the shoe, the horse was lost;
For want of the horse, the rider was lost;
For want of the rider, the battle was lost;
For want of the battle, the kingdom was lost;
And all for the want of a horseshoe nail.*

Benjamin Franklin

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Appendix 1: Questionnaire survey

Phase 1 Recruit Questionnaire for EdD research

Does the PAR model encourage reflective learning and motivation for Phase 1 recruits in the British Army?

What is the aim of this research?

This is supervised research in partial fulfilment of the requirements for an EdD. The purpose of this study is to examine the effectiveness of present, apply, review (PAR) model delivered to recruits during Phase 1 training at Army Training Centre (ATC) Pirbright. The aim is to identify any pertinent areas to help improve training that is delivered at training regiments, the wider army and for reservist training.

Who is conducting the research and who is it for?

Capt Leon Berry AGC (ETS) is carrying out this research on behalf of the Open University (OU). I am experienced/have received training in carrying out research relevant to this study e.g. conducting interviews for Masters (MEd) research. Further information about the OU can be found on the OU website: www.open.ac.uk

Why am I being invited to participate in this research?

You have been identified as a participant due to your specific point within Phase 1 training. For this reason I would like to invite you to participate in our research. **Participation in the research is not a requirement for passing your course. Your participation is completely voluntary.**

If I take part in this research, what will be involved?

Should you choose to participate, you will be asked to complete a questionnaire on 2 occasions; once during Week 1 and again during Week 12. Interviews will also be conducted during the last 2 weeks of your training, only 3 people from your group will be asked for interview. The interview will take approximately 1 hour and will be conducted at your workplace at a date and time that is convenient to you so that it does not affect your training. This will be confirmed through your relative Training Officer. I will be made aware to you before conducting the interview if you had any further questions. With your input, changes could be made to basic training to make it more effective to the cohorts following on from you. **Your results will not be shared with any of your training team and will not affect your course standing.**

What will the interview be like?

The interview will be semi-structured in nature, meaning that questions will be posed that gives you the opportunity to say exactly what you mean. The interview will be audio-recorded so that it can be transcribed at a later date. The interview will take place in a supervised area.

What will we be talking about?

Questions will be asked regarding your experiences of Phase 1 training. Topics will include the lessons you received and the instructors who were involved in your training.

Is it confidential?

Your participation will be treated in **strict confidence** in accordance with the Data Protection Act (1998). No personal information will be passed to any other party. A report of the findings from this study will be written, but no individual will be identifiable in published results of the research. Your statements may be quoted within the report as evidence to highlight a certain aspect of the findings; however your name will not be attached to it and will remain anonymous by using aliases such as Recruit A etc. Once the interviews have been transcribed, the original tapes used will be destroyed. The transcripts will be held on a password protected laptop. Data will not be stored on external devices. You will have 2 weeks after conducting the interview to contact me and request the removal of their data if you change your mind.

What happens now?

Over the next few weeks, someone from the Training Wing may contact you by email or telephone to ask if you would like to take part. A cross-section of people with different experiences is required to be included in the study and therefore it cannot be guaranteed that everyone who volunteers to take part will be seen. My role in this study is purely as a researcher, my rank and standing within the army holds no bearing or influence over your training i.e. I will not be discussing any aspect of your participation with your training team. If you would prefer not to be contacted about this research, please use the number below to let me know and I will not contact you again.

Your participation is entirely voluntary and you may withdraw at any point.

What if I have other questions?

If you have any other questions about the study we would be very happy to answer them. Please contact either the researcher: Capt Berry on XXX XXX or by email to XXX XXX or Dr Bart Rienties if you want to talk to someone else about this research.

Consent Form

The Institute of Educational Technology, The Open University.

“Examination of Phase 1 Instruction”

Agreement to Participate

I,

(print name)

agree to take part in this research project.

I have had the purposes of the research project explained to me.

I have been informed that I may withdraw at any point by simply saying so.

I have been assured that my confidentiality will be protected as specified in the letter/leaflet.

I agree that the information that I provide can be used for educational or research purposes, including publication.

I understand that if I have any concerns or difficulties I can contact:

Capt Leon Berry

At: XXX XXX

If I want to talk to someone else about this project, I can contact:

Dr Bart Rienties (supervising tutor)

XXX XXX

I assign the copyright for my contribution to the Faculty for use in education, research and publication.

Signed:

Date:

Phase 1 Recruit Questionnaire for EdD research

Part 1 – Self-Regulated Learning & Motivation

Please answer the questions as honestly as you can. Some may seem less relevant to your stage in training however answer as best as you can.

Scale:

1	2	3	4	5	6	7
(Strongly Disagree)			(Neutral)			(Strongly Agree)

Q. No.	Statement	Score						
1.	I prefer course content that really challenges me so I can learn new things.	1	2	3	4	5	6	7
2.	I believe I will receive an excellent report on this course.	1	2	3	4	5	6	7
3.	Getting a good report on this course is the most satisfying thing for me right now.	1	2	3	4	5	6	7
4.	I try to change the way I learn in order to fit the course requirements and the instructor/s teaching style.	1	2	3	4	5	6	7
5.	If I can, I want to do better on the course than most of the other recruits.	1	2	3	4	5	6	7
6.	It is my own fault if I don't learn the material on this course.	1	2	3	4	5	6	7
7.	If I find something difficult to understand, I change the style I try to learn it.	1	2	3	4	5	6	7
8.	If I try hard enough, then I will understand the course material.	1	2	3	4	5	6	7
9.	Whenever I read or hear a conclusion or idea, I think about possible alternatives.	1	2	3	4	5	6	7
10.	The most satisfying thing for me on this course is trying to understand the content as thoroughly as possible.	1	2	3	4	5	6	7
11.	I want to do well on the course because it is important to show my ability to my family, friends, future unit or others.	1	2	3	4	5	6	7
12.	Considering the difficulty of this course, I think I will perform well.	1	2	3	4	5	6	7
13.	During lessons I often miss important points because I'm thinking of other things.	1	2	3	4	5	6	7
14.	I often find myself questioning things I hear or read on this course to decide if I find them convincing.	1	2	3	4	5	6	7
15.	When I become confused about something I'm trying to learn, I go back and try to figure it out.	1	2	3	4	5	6	7

16.	If I don't understand the course material, it is because I didn't try hard enough.	1	2	3	4	5	6	7
17.	I question others to make sure I understand what I have been learning.	1	2	3	4	5	6	7
18.	I'm confident I can learn the basic concepts taught on this course.	1	2	3	4	5	6	7
19.	I try to construct my own ideas that relate to what I am learning.	1	2	3	4	5	6	7
20.	I expect to do well on this course.	1	2	3	4	5	6	7
21.	On a course like this, I prefer content that arouses my curiosity, even if it is difficult to learn.	1	2	3	4	5	6	7
22.	If I get confused taking notes during instruction, I make sure I sort it out afterwards e.g. compare notes	1	2	3	4	5	6	7

Part 2 – Reflective Practice Self-Assessment

This section looks to examine your reflect on what you have learned. There are no 'right' or 'wrong' responses to the statements that follow. A response is only 'right' if it reflects your personal reaction, and the strength of your reaction, as accurately as possible. Please circle the appropriate letter to indicate the level of your agreement with statements about your actions.

1 2 3 4 5
 Strongly disagree Neutral Strongly agree

1. When I am working on some activities, I can do them without thinking about what I am doing.	1	2	3	4	5
2. This course requires me to understand concepts taught by the instructor.	1	2	3	4	5
3. I sometimes question the way others do something and try to think of a better way.	1	2	3	4	5
4. During this course I have changed the way I look at myself.	1	2	3	4	5
5. On this course we do things so many times that I started to do them without thinking about it.	1	2	3	4	5
6. To pass this course you need to understand the content.	1	2	3	4	5
7. On this course you are encouraged to continually think about what you are being taught.	1	2	3	4	5
8. This course has challenged some of my firmly held opinions.	1	2	3	4	5
9. I need to understand the material taught by the instructor in order to perform practical tasks.	1	2	3	4	5
10. I often reflect on my actions to see whether I could have improved on what I did.	1	2	3	4	5
11. I receive regular constructive feedback from my instructors.	1	2	3	4	5

12. If I follow what the instructor says, I do not have to think too much on this course.	1	2	3	4	5
13. I like to think over what I have been doing and consider alternative ways of doing it.	1	2	3	4	5
14. I often re-evaluate my experience so I can learn from it and improve my next performance.	1	2	3	4	5
15. The feedback that I receive helps me develop my learning.	1	2	3	4	5

Part 3 – Personal Details

Section & Platoon	
Service Number	
Age	
Gender	Male / Female
Previous educational background <i>(please tick highest level achieved)</i>	<input type="checkbox"/> GCSEs <input type="checkbox"/> A-Levels / BTEC / College equivalent <input type="checkbox"/> Degree <input type="checkbox"/> Post-Graduate
Previous military experience e.g. Cadets, Reserves etc.	
Intended Regiment / Corps	

Appendix 2: ATC Pirbright Permission Letter



**Second In Command
Jackson Company
1 Army Training Regiment
Army Training Centre Pirbright
Alexander Barracks
Pirbright
Woking
Surrey, GU24 0QQ**

Telephone: 01483 795531 Military Network: 94211 5531
Facsimile: 01483 795518 Military Network: 94211 5518

Reference: 1_6_6/Ja

Date: 18 Feb 15

LETTER OF AUTHORISATION

30149694 Lt L Berry AGC(ETS) has been given permission to interview 2 x recruits from 96 Sqn and 2 x recruits from Sword Coy between 1500-1800 in LR 3 Granby Hall 19 Feb 15. These interviews will form the basis of an investigation as part of his Army funded PHD in Education.

The interview will take no more than one hour per recruit and is to have no impact on training. Recruits selected are to be escorted to LR 3 by their Sect Comds.

AE WILLCOX-JONES
Capt
Company Second in Command

Appendix 3: Pilot Study Consent Form



36 Chestnut Drive
Milber
Newton Abbot
Devon
TQ12 4JX

Further information (Q&A) about:

A changing army: what are the current issues affecting British military Phase 1 training programmes and how does that effect developing recruits from civilian to soldiers?

What is the aim of this research?

This is supervised research in partial fulfilment of the requirements for a PhD. The purpose of this study is to examine the effectiveness of the instructional design delivered to recruits during Phase 1 training at British Army training regiments. The aim is to identify any pertinent areas for improvement that can be trialled during the main study for this thesis. The study will focus particularly on the viewpoints of designers, instructors and recruits to identify any relation between the theory and practical implementation.

Who is conducting the research and who is it for?

Lt Leon Berry AGC (ETS) is carrying out this research on behalf of the OU. He is experienced/has received training in carrying out research relevant to this study e.g. conducting interviews for Masters (MEd) research. Further information about the OU can be found on our website: www.open.ac.uk

Why am I being invited to participate in this research?

You have been identified as a participant due to your specific point within Phase 1 training. For this reason we would like to invite you to participate in our research.

If I take part in this research, what will be involved?

Interviews will be conducted during Feb/March 2015 (TBC). The interview will take approximately 1 hour and would be conducted at your workplace at a date and time that is convenient to you so that it does not affect your training. **This will be confirmed through your relative ATR Training Officer. The researcher will be made aware to you before conducting the interview if you had any further questions. With your input, changes could be made to basic training to make it more effective to the cohorts following on from you.**

What will the interview be like?

The interview will be semi-structured in nature, meaning that questions will be posed that gives you the opportunity to say exactly what you mean. The interview will be audio-recorded so that it can be transcribed at a later date.

What will we be talking about?

I will be asking questions regarding your experiences of Phase 1 training. Topics will include use of technology, teaching methods, sufficient learning time, group size and the amount of information delivered.

Is it confidential?

Your participation will be treated in **strict confidence** in accordance with the Data Protection Act (1998). **No personal information will be passed to any other party.** We will write a report of the findings from this study, but no **individual will be identifiable** in published results of the research. **Your statements may be quoted within the report as evidence to highlight a certain aspect of the findings; however your name will not be attached to it and will remain anonymous by using aliases such as Recruit A etc.** Once the interviews have been transcribed, the original tapes used will be destroyed. The transcripts will be held on a password protected laptop. Data will not be stored on external devices. Participants will have 2 weeks after conducting the interview to contact the researcher and request the removal of their data if they change their minds.

What happens now?

Over the next few weeks, someone from the Training Wing may contact you by email or telephone to ask if you would like to take part and, if so, ask you a few questions about yourself. We need to make sure that a cross-section of people with different experiences are included in the study and for this reason we cannot guarantee that we will see everyone who volunteers to take part, although we would hope to include most. If you would prefer not to be contacted about this research, please use the number below to let us know and we will not contact you again. Your participation is entirely voluntary.

What if I have other questions?

If you have any other questions about the study we would be very happy to answer them. Please contact either the researcher: Lt Berry on XXX XXX or by email to XXX XXX or the Associate Dean Prof Eileen Scanlon if you want to talk to someone else about this research.

Consent Form

The Institute of Educational Technology, The Open University.

“Examination of Phase 1 Instructional design”

Agreement to Participate

I,

(print name)

agree to take part in this research project.

I have had the purposes of the research project explained to me.

I have been informed that I may refuse to participate at any point by simply saying so.

I have been assured that my confidentiality will be protected as specified in the letter/leaflet.

I agree that the information that I provide can be used for educational or research purposes, including publication.

I understand that if I have any concerns or difficulties I can contact:

Lt Leon Berry

At: XXX XXX

If I want to talk to someone else about this project, I can contact Associate Dean (research) at:

Prof Eileen Scanlon

Tel: XXX XXX

I assign the copyright for my contribution to the Faculty for use in education, research and publication.

Signed:

Date: